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DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM (DMPPS). VOLU--ETC(U)
JUL 78 M J LAMATRICE , J K ST. LAURENT

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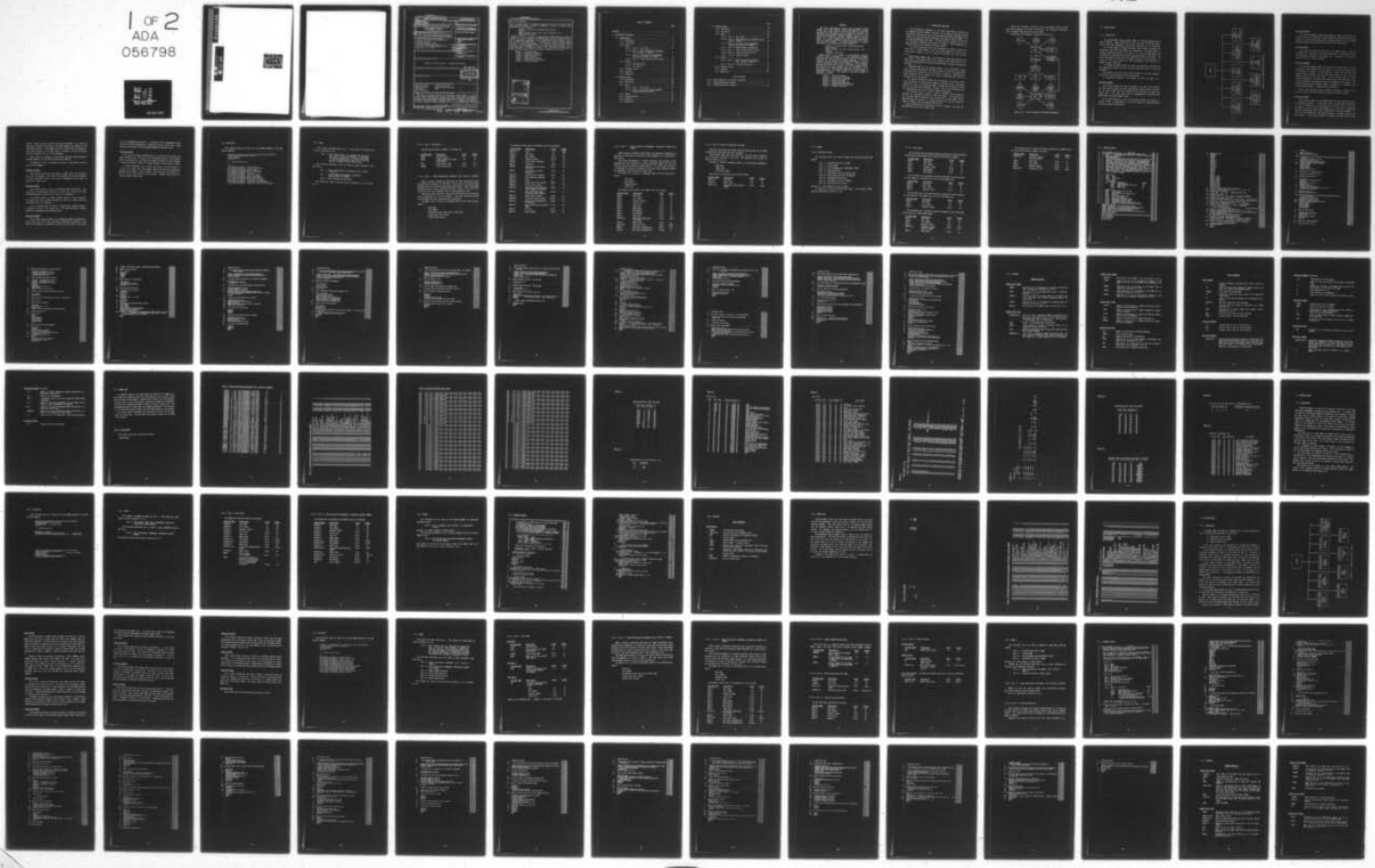

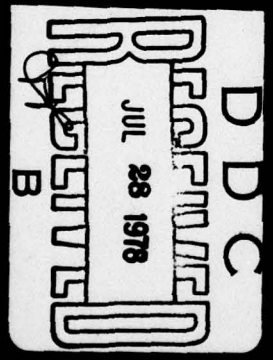

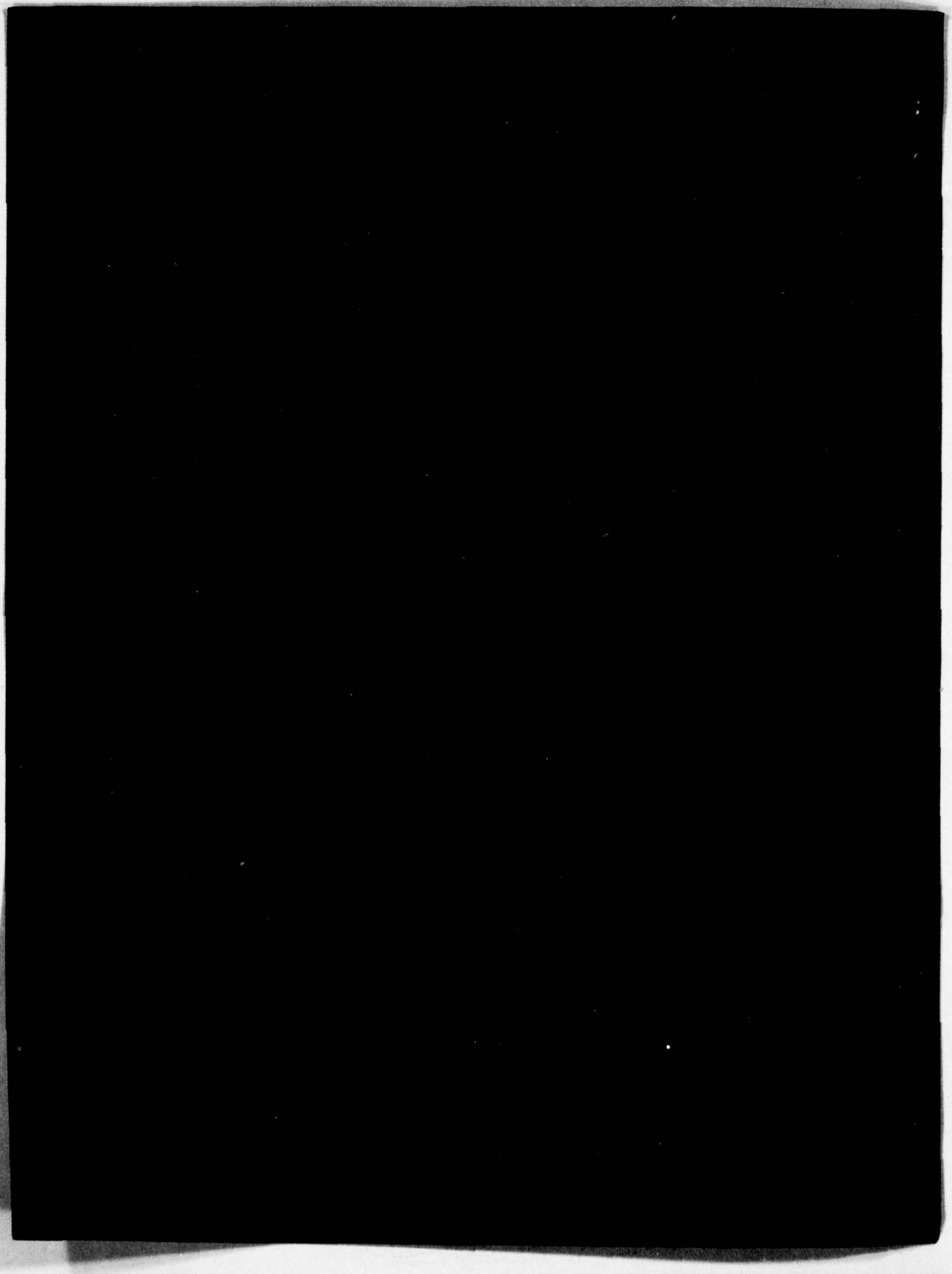

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Shipyard Production Shops
SWBS

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The Depot Maintenance Planning and Programming System (DMPPS) is a large computer system developed over a period of two and a half years by the David W. Taylor Naval Ship Research and Development Center (DTNSRDC), Code 186 for the Naval Sea Systems Command (NAVSEA), Code 070T. The System was developed to project shipyard resource requirements (i.e., labor mandays and costs as

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well as material costs) by shipyard production shop and by ship work breakdown structure (SWBS). It enables management to assess the impact on the shipyards and ship systems of

- Changes in depot-level maintenance/alterations policy,
- Major changes in force levels and/or composition and
- Budgetary constraints.

DMPPS consists of a network of interdependent computer programs written in FORTRAN IV. It was developed at DTNSRDC using the CDC 6000 series computers and was subsequently converted for the IBM 360/370 series computers. It is now installed and operational at the NAVSEA 070 computer terminal (which accesses an IBM 370/168 computer). This document presents the IBM 360/370 version of the DMPPS program modules. The modules have been grouped into six subsystems. Each of Volumes 2-7 of this document describes, in detail, one of these subsystems. An executive summary of the entire DMPPS is presented in Volume 1. The content of the seven volumes is indicated as follows:

Volume 1 - Executive Summary
Volume 2 - Preprocessor Subsystem
Volume 3 - Alterations Subsystem
Volume 4 - Repair Subsystem
Volume 5 - Synthesizer Subsystem
Volume 6 - Report Generator Subsystem
Volume 7 - Feedback Subsystem

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ABSTRACT

The Depot Maintenance Planning and Programming System (DMPPS) is a large computer system developed over a period of two and a half years by the David W. Taylor Naval Ship Research and Development Center (DTNSRDC), Code 186 for the Naval Sea Systems Command (NAVSEA), Code 070T. The System was developed to project shipyard resource requirements (i.e., labor mandays and costs as well as material costs) by shipyard production shop and by ship work breakdown structure (SWBS). It enables management to assess the impact on the shipyards and ship systems of

- Changes in depot-level maintenance/alterations policy
- Major changes in force levels and/or composition
- Budgetary constraints

DMPPS consists of a network of interdependent computer programs written in FORTRAN IV. It was developed at DTNSRDC using the CDC 6000 series computers and was subsequently converted for the IBM 360/370 series computers. It is now installed and operational at the NAVSEA 070 computer terminal (which accesses an IBM 370/168 computer). This document presents the IBM 360/370 version of the DMPPS program modules. The modules have been grouped into six subsystems. Each of Volumes 2-7 of this document describes, in detail, one of these subsystems. An executive summary of the entire DMPPS is presented in Volume 1. The content of the seven volumes is indicated as follows:

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3. ALTERATIONS SUBSYSTEM

The alterations subsystem of the Depot Maintenance Planning and Programming System (DMPPS) consists of two computer programs, MATCH and ALTGEN, which process data from the Depot Maintenance Assignment File (DMAF), the Ship Alterations Management Information System (SAMIS), and the Major Alterations File (MAF). The MAF contains estimates on particular alterations requiring more than 750 mandays. These estimates are compiled manually from shipyard and PERA records.

Two other programs within the subsystem are used to update the data files. Program UPDEP is used for updating DMAF (see Section 2.3), and Program FIXSAM is used for updating the SAMIS file (see Section 3.2).

MATCH compares DMAF, SAMIS, and the MAF and identifies discrepancies among them. The program also lists problem areas within each of the files and tabulates certain statistics useful when evaluating and updating the data.

Threshold data for the program consist of the 750-manday cut-off point for major alterations, and the 25 percent cut-off for zero-manday alterations for availabilities containing an excess of unscoped work. These parameters may be changed as a result of analyzing their effect on previous runs of the program.

The reports produced by MATCH help the analyst to determine additions, deletions, or corrections required in the data files. The update programs are then run for DMAF and SAMIS. Procedures for updating the MAF have not yet been fully developed. However, data on new alterations may be incorporated by the use of standard computer procedures.

The revised files are used as input to ALTGEN, which generates matrices for alterations common to DMAF and SAMIS. The matrices are for one-digit SWBS by shop and also include the row and column totals. These matrices are written to a random access device and the access key number is added to the corresponding DMAF record.

Minor alterations and alterations not yet included in the MAF are characterized by the use of repair data.

Nuclear and ordinance alterations are not processed, since no data have been compiled for nuclear alterations, and ordinance alterations have no mandays associated with them in SAMIS.

A diagram of the Subsystem is shown in Figure 3.0-1.

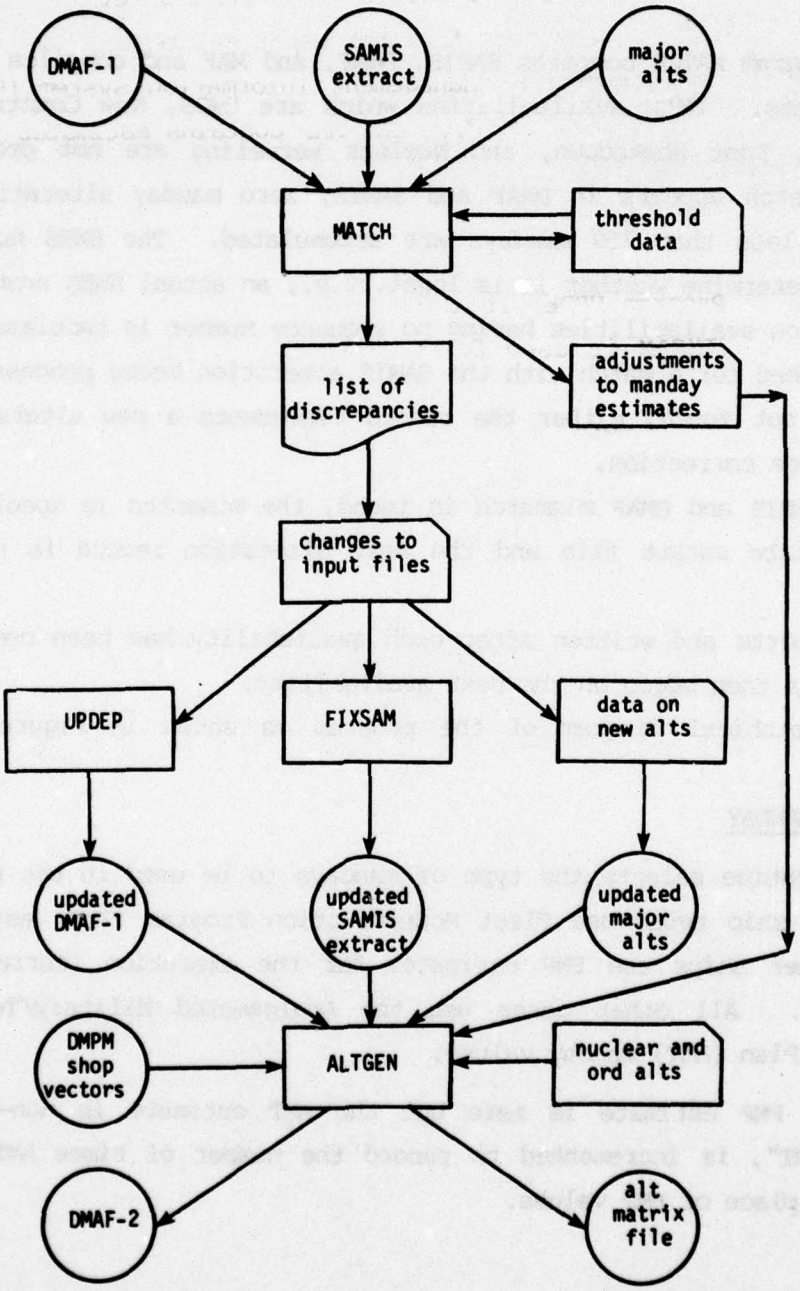

Figure 3.0-1 - Block Diagram of Alterations Subsystem

3.1 PROGRAM MATCH

3.1.1 DESCRIPTION

The program MATCH compares SAMIS, DMAF, and MAF and compiles data on their contents. DMAF availabilities which are UNOS, New Construction, Fitting Out, Post Shakedown, and Nuclear Refueling are not processed.

If a match appears in DMAF and SAMIS, zero manday alterations and alterations less than 750 mandays are accumulated. The SWBS number is scanned to determine whether it is legal, i.e., an actual SWBS number, and information on availabilities having no sequence number is tabulated. The MAF is searched for a match with the SAMIS alteration being processed. If a match is not found, either the record represents a new alteration or SAMIS requires correction.

If a SAMIS and DMAF mismatch is found, the mismatch is specified on the appropriate output file and the next alteration record is read and processed.

The reports are written after each availability has been completed. Processing is then begun on the next availability.

A hierarchical diagram of the program is shown in Figure 3.1-1.

Subroutine MANDAY

This routine selects the type of mandays to be used in the program. All carrier ship types use Fleet Modernization Program (FMP) estimates; and all other ships use FMP estimates for the execution (current) and budget year. All other cases use the Amalgamated Military/Technical Improvement Plan (AMT) manday values.

If the FMP estimate is zero but the AMT estimate is non-zero, a counter, "AMT", is incremented to record the number of times AMT values are used in place of FMP values.

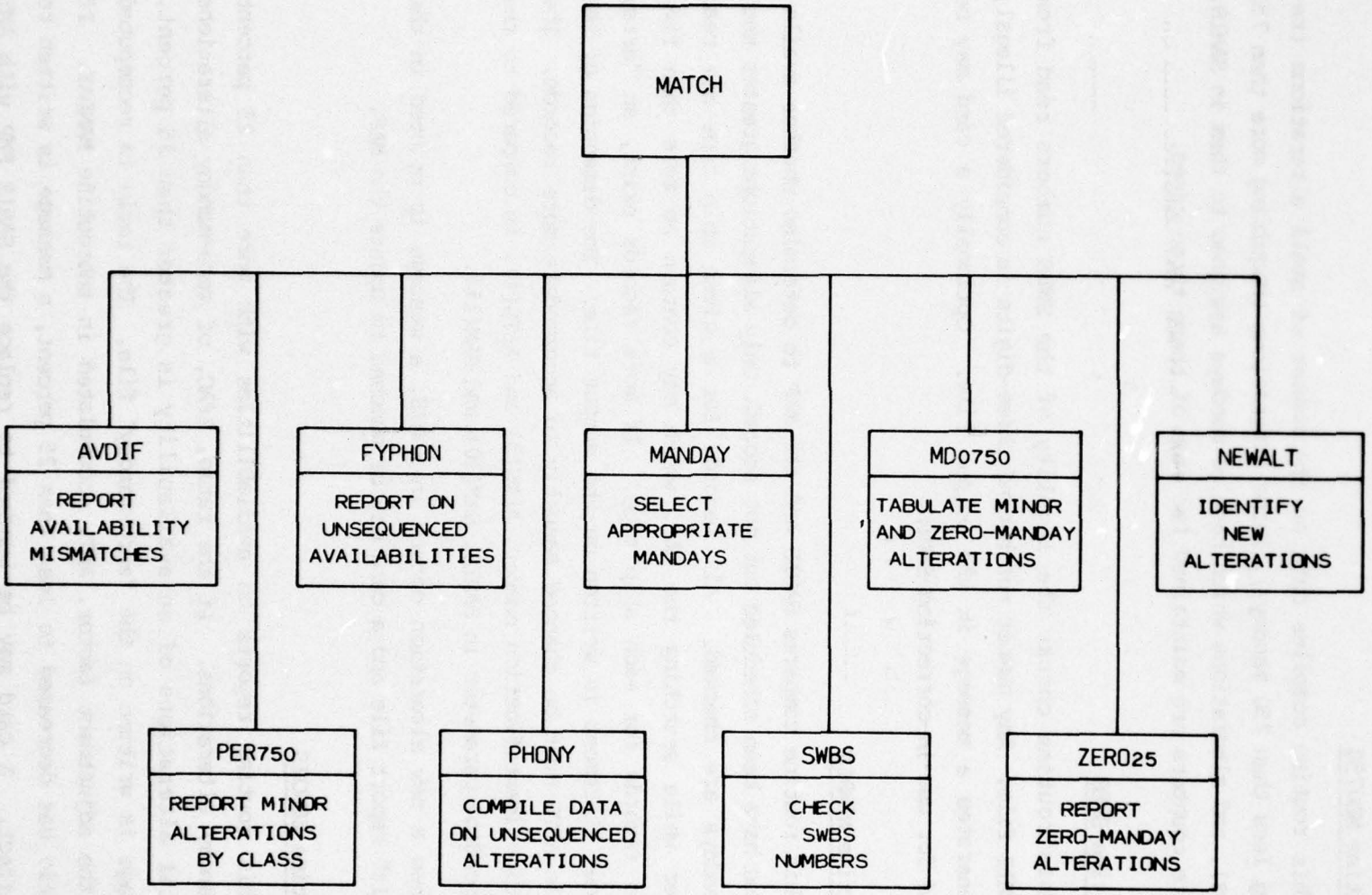

Figure 3.1-1 - MATCH Hierarchical Diagram

Subroutine MD0750

This routine compiles data on the number of small alterations (requiring less than 750 mandays), large alterations (requiring more than 750 mandays), and alterations which have no mandays assigned to them in SAMIS. Separate counters are maintained for each of these three cases.

Subroutine SWBS

This routine checks the legality of the SWBS numbers read from the SAMIS file. Any number not having three-digits is considered illegal, and generates a message in the output file. Optionally a card may be punched for use in correcting SAMIS.

Subroutine NEWALT

This routine compares SAMIS and the MAF to determine whether availabilities have been scheduled but not scoped. Only alterations greater than 750 mandays are checked. All records for a given ship type are read together while searching the MAF, which may contain no more than five hundred records for each ship type. If more records exist, an "array overflow" statement is written on the output file. The dimension of the variable ALTS must be changed manually to accommodate more records. The alteration identification number, ALTS(3) and ALTS(4), is compared to the corresponding parameter in SAMIS, SAM(10) and SAM(11).

When a new alteration occurs in SAMIS, a message is printed in the "new alt" report file and a card may be punched to update the MAF.

Subroutine ZERO25

This routine reports on availabilities with more than 25 percent zero-manday alterations. If the ratio, ZFAC, of zero-manday alterations to total alterations of an availability is greater than 25 percent, a message is written on the "zero-manday" file. The ratio is recomputed using the adjustment factor, AMT, accumulated in subroutine MANDAY. If the ratio has decreased to less than 25 percent, a message is written to that effect. A card may be punched to replace the SAMIS FMP with AMT

values. After the above actions have been performed, or if ZFAC was less than 25 percent originally, the SAMIS mandays are compared to the DMAF manday totals. If the SAMIS totals are greater than 135 percent or less than 90 percent of the DMAF totals, a message is written indicating that the estimates are not in close agreement.

DMAF totals are computed by multiplying Production Shop Productive mandays, DMAF(16), by the percent alterations, DMAF(19).

If DMAF(19) is zero, a message is written to that effect, and the ratio is not computed.

Subroutine PER750

This routine reports the percentage, by SAMIS class, of alterations less than 750 mandays. The ratio of alterations less than 750 mandays to total alterations within a ship type is computed and the result is written on a report file.

Subroutine PHONY

This routine compiles data on unsequenced SAMIS alterations. Each time such an unsequenced alteration is found, the fiscal year, FMP, and AMT estimates are stored, and a counter is incremented.

If the FMP estimate is large (greater than the input threshold), the fiscal year, FMP, and AMT estimates are stored in another array and a second counter is incremented.

If the storage arrays are about to exceed their maximum capacity, a message is written to the output file. The dimensions must be changed manually to accommodate the additional data.

Subroutine FYPHON

This routine reports mandays for unsequenced SAMIS alterations by fiscal year, and notes large individual unsequenced alterations. Both FMP and AMT mandays are combined by fiscal year and stored as one value

for all unsequenced alterations. In addition, large unsequenced alterations are stored individually in separate arrays by fiscal year. These results are written on the "unsequenced SAMIS alterations" file.

Subroutine AVDIF

This routine reports differences in availabilities between the SAMIS and DMAF files. The type, hull, and sequence number, which uniquely define an availability, are taken from SAMIS and DMAF files and compared in the main program. AVDIF is entered whenever a match cannot be made.

If AVDIF determines that a match does exist, an error message is written to the output file. The message indicates whether the availability appears only in DMAF or only in SAMIS. Flags denoting the condition are set for use in other modules of the program. Punched cards may be obtained to update either file.

3.1.2 RUN SET-UP

The following set-up is used to run the MATCH program on the IBM 360/370 computer:

```
//NVSMACH JOB (XXXXXXXXXX,XXXXX),USER,CLASS=D,TIME=(,40),MSGLEVEL=1
//JOBLIB DD DSN=NVS01.DEPOT.LIB,DISP=SHR
// EXEC PGM=MACH
//GO.FT05F001 DD *
      MATCH card inputs (unit 5)
//GO.FT06F001 DD SYSOUT=A  (ERROR MESSAGES)
//GO.FT01F001 DD SYSOUT=A  (AVAILS. ONLY IN DMAF)
//GO.FT02F001 DD SYSOUT=A  (ILLEGAL SWBS)
//GO.FT03F001 DD DSN=NVS01.DMAF1.DATA,DISP=SHR
//GO.FT04F001 DD DSN=NVS01.SAMIS.DATA,DISP=SHR
//GO.FT08F001 DD SYSOUT=A  (NEW ALTS)
//GO.FT09F001 DD SYSOUT=A  (SAMIS/DMAF RATIO)
//GO.FT10F001 DD SYSOUT=A  (ALTS < 750 MANDAYS)
//GO.FT11F001 DD SYSOUT=A  (UNSEQUENCED AVAILS.)
//GO.FT12F001 DD DSN=NVS01.BIGALTS.DATA,DISP=SHR
//GO.FT13F001 DD SYSOUT=A  (AVAILS. ONLY IN SAMIS)
//GO.FT14F001 DD SYSOUT=A  (ZERO-MANDAY ALTS BY CLASS)
//GO.FT15F001 DD SYSOUT=A  (INDIVIDUAL ZERO-MANDAY ALTS)
//GO.FT16F001 DD SYSOUT=A  (MANDAYS FOR AVAILS. ONLY IN SAMIS)
```

3.1.3 INPUT

Card inputs are made using unit 5. The format for these cards is given in Section 3.1.3.1.

Unit 5 - Card inputs which (1) identify the execution year, (2) set the lower boundary of the number of mandays considered to be large alterations, (3) set the punch option flag, and (4) set the desired intermediate print option flags.

The following additional units are used to input information from disk files:

Unit 3 - Depot Maintenance Assignment File, Version 1 (DMAF-1).

Unit 4 - Ship Alterations Management Information Systems SAMIS File (SAMIS).

Unit 12 - Major Alterations File (MAF).

The formats for these files are given in Sections 3.1.3.2 through 3.1.3.4.

3.1.3.1 Unit 5 - Card Input

Only one card is input to MATCH. Its format is:

Variable Name	Description	Field	Format
IEXYR	Execution year	1-2	I2
LARGE	Lower boundary for large alterations	3-9	I7
IPUN	Punch option flag	10-11	I2
ITRACE	Print option flag	12-13	I2

3.1.3.2 Unit 3 - Depot Maintenance Assignment File, Version 1 (DMAF-1)

DMAF-1 contains information describing all depot maintenance ship-availabilities scheduled for yard-work at both Navy and privately owned shipyards during the selected five-fiscal-year period. Depot maintenance availabilities are those availabilities with a type of work other than Fitting Out (FO), Post Shakedown (PS), or New Construction (NC).

Each semi-annual period of a fiscal year within which an availability falls corresponds to a record of DMAF-1. Note that there may be more than one DMAF record for any particular availability.

The DMAF-1 file is sorted in ascending order by the following parameters:

Ship type
Hull number
Availability start date (year, month, day)
Fiscal year (this record)
Period (this record)

The format of each record in the DMAF-1 file is as follows:

Variable Name	Description	Field	Format
DMAF(1-2)	Yard	1-5	A4,A1
DMAF(3)	Ship type	6-9	A4
DMAF(4)	Hull number	10-13	I4
DMAF(5)	Sequence number	14-17	I4
DMAF(6)	Continuation indicator	18	A1
DMAF(7)	Type work	19-21	A3
DMAF(8)	Availability start date (mo/da/yr)	22-27	I6
DMAF(9)	Availability end date (mo/da/yr)	28-33	I6
DMAF(10)	Specialization category	34-36	A3
DMAF(11)	Yard ownership indicator	37	A1
DMAF(12)	Coast	38	A1
DMAF(13)	Fiscal year (this record)	39-40	I2
DMAF(14)	Period (this record)	41	I1
DMAF(15)	Production shop productive (PSP) mandays this period	42-48	I7
DMAF(16)	Total production shop productive (PSP) mandays	49-55	I7
DMAF(17)	Repair matrix number	56-59	I4
DMAF(18)	Alterations matrix number	60-63	I4
DMAF(19)	Percent of PSP mandays for alterations	64-66	I3
DMAF(20)	Labor distribution histogram number	67-68	I2
DMAF(21)	Sort key	74-76	I3
DMAF(22)	Record number	85-90	I6

3.1.3.3 Unit 4 - Ship Alterations Management Information System File (SAMIS)

SAMIS contains information describing the alterations scheduled for yard-work at both Navy and privately owned shipyards for a seven-fiscal-year period.

Each record corresponds to a single alteration, and contains a brief description of the alteration, a unique alteration number, and the ship class to which the alteration number applies. If a particular alteration is scheduled for ships not belonging to the same class, different numbers are assigned to the alteration for each class.

The SAMIS file is sorted in ascending order by the following parameters:

Ship type
Hull number
Sequence number
Fiscal year

The format of each record in the SAMIS file is as follows:

Variable Name	Description	Field	Format
SAM(1)	Ship type	1-4	A4
SAM(2)	Hull number	5-8	I4
SAM(3)	Sequence number	9-12	I4
SAM(4)	Fiscal year	13-15	I3
SAM(5)	Type work	17-19	A3
SAM(6)	SWBS number	20-22	I3
SAM(7)	AMT mandays	27-31	I5
SAM(8)	FMP mandays	33-37	I5
SAM(9)	SAMIS type	41-44	A4
SAM(10-11)	Alteration identification number	45-49	A4,A1
SAM(12)	SAMIS class	53-56	A4
SAM(13-20)	Alteration brief	58-87	7A4,A2
SAM(21)	AMT fiscal expenditures	89-97	I9
SAM(22)	FMP fiscal expenditures	99-105	I7

3.1.3.4 Unit 12 - Major Alterations File (MAF)

The Major Alterations File (MAF) contains shop vectors for all SAMIS alterations on which data have been collected.

This program reads only that portion of the data which identifies the alterations contained in the file. The complete file is given in detail in Section 3.3.3.5.

The MAF is sorted in ascending order by the following parameters:

Ship type
SAMIS class
Alteration number

Each record in the MAF has the following format:

Variable Name	Description	Field	Format
ALTS(1,I)	Ship type	1-4	A4
ALTS(2,I)	SAMIS class	5-8	I4
ALTS(3-4,I)	Alteration identification number	12-16	A4,A1

3.1.4 OUTPUT

3.1.4.1 Hard-Copy Output

The following units are used by MATCH for generating hard-copy output:

Unit 1 - Availabilities only in DMAF
Unit 2 - Illegal SWBS
Unit 6 - Error messages and intermediate output
Unit 8 - New alterations
Unit 9 - SAMIS DMAF alteration manday ratio
Unit 10 - Alterations less than 750 mandays
Unit 11 - Unsequenced alterations
Unit 13 - Availabilities only in SAMIS
Unit 14 - Zero-manday alterations

Section 3.1.7 gives samples of these outputs.

In addition, the program provides card output. The formats of these cards are described in Section 3.1.4.1.

3.1.4.2 Card Output

The following card is optional and may be punched for each alteration record when FMP zero mandays are replaced by AMT nonzero mandays:

Variable Name	Description	Field	Format
SAM(1)	Ship type	1-4	A4
SAM(2)	Hull number	5-9	I5
SAM(3)	Sequence number	10-13	I4
SAM(8)	FMP mandays	14-18	I5
SAM(7)	AMT mandays	19-23	I5

The following card is optional and may be punched for each availability that appears in the DMAF file, but not in the SAMIS file:

Variable Name	Description	Field	Format
DMAF(3)	Ship type	1-4	A4
DMAF(4)	Hull number	5-9	I5
DMAF(5)	Sequence number	10-13	I4

The following card is optional and may be punched for each availability that appears in the SAMIS file, but not in the DMAF file:

Variable Name	Description	Field	Format
SAM(1)	Ship type	1-4	A4
SAM(2)	Hull number	5-9	I5
SAM(3)	Sequence number	10-13	I4

The following card is optional and may be punched for each alteration record having an illegal SWBS number:

Variable Name	Description	Field	Format
SAM(1)	Ship type	1-4	A4
SAM(2)	Hull number	5-8	I4
SAM(3)	Sequence number	9-12	I4
SAM(10-11)	Alteration identification number	14-18	A4,A1
SAM(6)	SWBS number	19-26	I8

The following card is optional and may be punched for a SAMIS alteration record which does not appear in the MAF:

Variable Name	Description	Field	Format
SAM(10-11)	Alteration identification number	9-13	A4,A1
SAM(1)	Ship type	15-18	A4
SAM(2)	Hull number	20-23	I4
SAM(3)	Sequence number	24-27	I4
SAM(13-20)	Alteration brief	29-58	7A4,A2

3.1.5 PROGRAM LISTING

```
C   MIKE  LAMATRICE   1 8 6 3            AUG. 1975                                    MTCH  10
C     PROGRAM MATCH(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT,TAPE4                      MTCH  20
C    1   ,TAPE3       ,TAPE2=128,TAPE1=128,TAPE12    ,TAPE8=128,TAPE9=128,         MTCH  30
C    2   TAPE10=128,TAPE11=128)                                                     MTCH  40
C    3   TAPE16=128,PUNCH)                                                         MTCH  45
C - - -   THIS PROGRAM COMPARES SAMIS WITH DMAF AND THE ALTS SCOPE LIST.           MTCH  50
C - - -   TABLES OF AVAILABILITIES ONLY IN DMAF AND ONLY IN SAMIS ARE             MTCH  60
C - - -   GENERATED.  NEW ALTS ARE ALSO TABULATED.  UNSEQUENCED SAMIS             MTCH  70
C - - -   ALTS AND ILLEGAL SWBS ARE NOT INCLUDED IN THE COMPARISONS.              MTCH  80
C - - -   UNSEQUENCED AVAILABILITIES ARE GROUPED AND LISTED BY FISCAL             MTCH  90
C - - -   YEAR .  LARGE ALTS ARE ALSO LISTED INDIVIDUALLY.  CERTAIN DMAF         MTCH 100
C - - -   AVAILABILITIES ARE NOT PROCESSED, E.G. NC.  TABLES ARE                 MTCH 110
C - - -   PRODUCED OF AVAILABILITIES WITH MORE THAN 25 0/0 ZERO-MANDAYS          MTCH 120
C - - -   ALTS.  FOR EACH SHIP TYPE, THE PROPORTION OF ALTS < 750                MTCH 130
C - - -   MANDAYS ARE LISTED.  FOR AVAILABILITIES IN BOTH DMAF AND SAMIS         MTCH 140
C - - -   WHERE THE RATIO OF THE THE RESPECTIVE MANDAYS IS < 0.9 OR              MTCH 150
C - - -   > 1.3, A TABLE IS PRINTED.                                             MTCH 160
C                                                                                MTCH 170
C - - -   INPUT FILES                                                           MTCH 180
C - - -   TAPE3     DMAF                                                        MTCH 190
C - - -   TAPE4     SAMIS                                                       MTCH 200
C - - -   TAPE5     CARD INPUT  *                                               MTCH 210
C - - -   TAPE12    ALTS                                                        MTCH 220
C - - -    *  CARD INPUT                                                       MTCH 230
C - - -   CARD  VARIABLE  DEFINITION                          FORMAT            MTCH 240
C - - -    1      IEXYR     EXECUTION YEAR                    I2                MTCH 250
C - - -           LARGE     LOWER BOUND FOR LARGE ALTS        I7                MTCH 260
C - - -           IPUN      PUNCH FLAG                        I2                MTCH 270
C - - -           ITRACE    PRINT OPTION                      I2                MTCH 280
C                                                                                MTCH 290
C - - -   OUTPUT FILES                                                          MTCH 300
C - - -   TAPE1     AVAILABILITIES ONLY IN DMAF                                 MTCH 310
C - - -   TAPE2     ILLEGAL SWBS                                                MTCH 320
C - - -   TAPE6     ERROR MESSAGES AND PROGRAM FLOW                             MTCH 330
C - - -   TAPE8     NEW ALTS                                                    MTCH 340
C - - -   TAPE9     SAMIS/DMAF MANDAY RATIO                                     MTCH 350
C - - -   TAPE10    ALTS < 750 MANDAYS                                          MTCH 360
C - - -   TAPE11    UNSEQUENCED AVAILABILITIES                                  MTCH 370
C - - -   TAPE13    AVAILABILITIES ONLY IN SAMIS                                MTCH 380
C - - -   TAPE14    ZERO-MANDAY ALTS BY CLASS                                   MTCH 390
C - - -   TAPE15    INDIVIDUAL SEQUENCED ZERO-MANDAY ALTS                       MTCH 400
C - - -   TAPE16    MANDAYS FOR AVAILABILITIES ONLY IN SAMIS                    MTCH 405
      DIMENSION ISKIP(8)                                                         MTCH 410
      COMMON /ONE/SAM(22),ISAM(4),IPUN,ITRACE,IAEND                              MTCH 420
      COMMON /TWO/PHOSAM(   5,2),BIGSAM(500,5),KPHO,LPHO,LARGE                  MTCH 430
      COMMON /THREE/DMAF(22),IENDSM,IENDMF,IDONLY,ISONLY                         MTCH 440
      COMMON /FOUR/LT750,IGT750,NONZMD,IZMD,NALT                                 MTCH 450
      COMMON /FIVE/ KS,AMT,IEXYR,MD,NEW,SAMD,MFLAG,KIN,KOUT,KDG                  MTCH 460
      INTEGER DMAF,SAM,AMT                                                       MTCH 470
      INTEGER TAF,UNOS                                                           MTCH 480
      DATA IBLANK/1H /,ISKIP/2HOW,2HNC,2HFO,2HPS,3HRAN,3HMAP,2HSW,2HOS/          MTCH 490
      DATA TAF/3HTAF/                                                            MTCH 500
      DATA UNOS/4HUNOS/                                                          MTCH 510
      DO 817 IP=1,5                                                              MTCH 520
      DO 817 IQ=1,2                                                              MTCH 530
```

```
817   PHOSAM(IP,IQ)=0.                                                  MTCH 540
      TENDSM=0                                                          MTCH 550
      IENDMF=0                                                          MTCH 560
      LOOP=0                                                            MTCH 570
      KPHO=0                                                            MTCH 580
      IPHO=0                                                            MTCH 590
      IDONLY=0                                                          MTCH 600
      ISONLY=0                                                          MTCH 610
      IZMO=0                                                            MTCH 620
      NONZMO=0                                                          MTCH 630
      LT750=0                                                           MTCH 640
      IGT750=0                                                          MTCH 650
      MFLAG=0                                                           MTCH 660
      NEW=0                                                             MTCH 670
      IAEND=0                                                           MTCH 680
      KIN=0                                                             MTCH 690
      KOUT=0                                                            MTCH 700
      KDG=0                                                             MTCH 710
      WRITE( 1,601)                                                     MTCH 720
      WRITE( 2,602)                                                     MTCH 730
      WRITE( 8,608)                                                     MTCH 740
      WRITE( 9,609)                                                     MTCH 750
      WRITE(10,610)                                                     MTCH 760
      WRITE(11,611)                                                     MTCH 770
      WRITE(13,613)                                                     MTCH 780
      WRITE(14,614)                                                     MTCH 790
      WRITE(15,615)                                                     MTCH 800
      WRITE(16,616)                                                     MTCH 810
601   FORMAT(' AVAILABILITIES ONLY IN DMAF',//                          MTCH 820
     $  4X,'TYPE HULL SEQ.NO. FY'/4X,'---- ---- ------- --'/)           MTCH 830
602   FORMAT(' ILLEGAL SWBS',//                                         MTCH 840
     $  10X,'SWBS   TYPE  HULL    SEQ.NO. ALT.NO. FY'/                 MTCH 850
     $  10X,'----   ----  ----    ------- ------- --'/)                MTCH 860
608   FORMAT(' NEW ALTS',//,                                            MTCH 870
     $  4X,'ALT.NO. TYPE   HULL SEQ.NO. FY',15X,'ALT. BRIEF'/          MTCH 880
     $  4X,'------- ----   ---- ------- --',15X,'----------'/)         MTCH 890
609   FORMAT(' SAMIS/DMAF RATIO',//                                     MTCH 900
     $  4X,'TYPE  HULL SEQ.NO. FY RATIO SAMIS MANDAYS  DMAF MANDAYS',/ MTCH 910
     $  4X,'----  ---- ------- -- ----- -------------  -------------'/) MTCH 920
610   FORMAT(' PROPORTION OF ALTS WITH MAN DAYS < 750',//               MTCH 930
     $  4X,'TYPE     PROPORTION'/4X,'----     ----------'/)            MTCH 940
611   FORMAT(' UNSEQUENCED ALTS     '// 7X, 'TOT. MAN DAYS', / ,        MTCH 950
     $  7X,'-------------',/,' FY     FMP     AMT',25X,                MTCH 960
     .   'LARGE UNSEQUENCED ALTS ',                                     MTCH 970
     .          ' (FMP--AMT)'/,' --     ---     ---',25X,34(1H-),/)  MTCH 980
613   FORMAT(' AVAILABILITIES ONLY IN SAMIS',//                         MTCH 990
     $  4X,'TYPE HULL SEQ.NO. FY'/4X,'---- ---- ------- --'/)          MTCH1000
614   FORMAT(' AVAILABILITIES WITH MORE THAN 25 0/0 ZERO-MANDAY ALTS'/  MTCH1010
     $/,4X,'TYPE HULL SEQ.NO. FY',                                     MTCH1020
     $   10X,'PROPORTION OF ZERO MAN DAY ALTS',/                       MTCH1030
     $  4X,'---- ---- ------- --',10X,31(1H-)/)                        MTCH1040
615   FORMAT(' INDIVIDUAL ZERO-MANDAY ALTS',//                          MTCH1050
     $  4X,'ALT.NO. TYPE   HULL SEQ.NO. FY',15X,'ALT. BRIEF'/          MTCH1060
     $  4X,'------- ----   ---- ------- --',15X,'----------'/)         MTCH1070
616   FORMAT(' MANDAYS FOR AVAILABILITIES ONLY IN SAMIS',/              MTCH1080
     .       ' ------- --- -------------- ---- -- ------',/)           MTCH1090
      READ(5,500)IEXYR,LARGE,IPUN,ITRACE                               MTCH1100
500   FORMAT(I2,I7,2I2)                                                MTCH1110
2     J=1                                                               MTCH1120
      AMT=0                                                             MTCH1130
```

```
      SAMD=0.                                                          MTCH1140
C                                                                      MTCH1150
C     CODING FOR IBM 370                                               MTCH1160
    1 READ(3,300,END=700) DMAF                                         MTCH1170
C                                                                      MTCH1180
300   FORMAT(A4,A1,A4,2I4,A1,A3,2I6,A3,2A1,I2,I1,2I7,2I4,I3,I2,5X,I3,  MTCH1190
     1   8X,I6)                                                        MTCH1200
      IF(DMAF(3).EQ.UNOS) GO TO 700                                    MTCH1210
3     IF(ITRACE.NE.1) GO TO 20                                         MTCH1220
      WRITE(6,90) DMAF(3),DMAF(4),DMAF(5)                              MTCH1230
90    FORMAT(' READING DMAF',1X,A4,2I4)                                MTCH1240
20    ISAM(1)=SAM(1)                                                   MTCH1250
      ISAM(2)=SAM(2)                                                   MTCH1260
      ISAM(3)=SAM(3)                                                   MTCH1270
      ISAM(4)=SAM(4)                                                   MTCH1280
      IF(LOOP.EQ.0) GO TO 5                                            MTCH1290
C                                                                      MTCH1300
C     FIRST CARD OF AN AVAILABILITY &                                  MTCH1310
C                                                                      MTCH1320
      IF(DMAF(6).NE.IBLANK) GO TO 1                                    MTCH1330
C                                                                      MTCH1340
C     SKIPPABLE AVAILABILITY &                                         MTCH1350
C                                                                      MTCH1360
5     DO 4 I=1,8                                                       MTCH1370
      IF(DMAF(7).EQ.ISKIP(I))GO TO 1                                   MTCH1380
4     CONTINUE                                                         MTCH1390
      IF(ITRACE.NE.1) GO TO 21                                         MTCH1400
      WRITE(6,91)                                                      MTCH1410
91    FORMAT(' GOOD DMAF')                                             MTCH1420
21    IF(IENDSW.EQ.1) GO TO 810                                        MTCH1430
      IF(IDONLY.EQ.1.OR.ISONLY.EQ.1) GO TO 10                          MTCH1440
      IF(MFLAG.EQ.1) GO TO 10                                          MTCH1450
C                                                                      MTCH1460
C     CODING FOR IBM 370                                               MTCH1470
    6 READ(4,400,END=800) SAM                                          MTCH1480
C                                                                      MTCH1490
400   FORMAT(A4,2I4,I3,1X,A3,I3,4X,I5,1X,I5,3X,A4,A4,A1,3X,A4,         MTCH1500
     .   1X,7A4,A2,I10,I8)                                             MTCH1510
      IF(SAM(1).EQ.TAF)GO TO 800                                       MTCH1520
      IF(ITRACE.NE.1) GO TO 22                                         MTCH1530
101   WRITE(6,92) (SAM(IB),IB=1,3)                                     MTCH1540
92    FORMAT(' READING SAMIS',1X,A4,I4,I3)                             MTCH1550
22    IF(LOOP.NE.0) GO TO 7                                            MTCH1560
      ISAM(1)=SAM(1)                                                   MTCH1570
      ISAM(2)=SAM(2)                                                   MTCH1580
      ISAM(3)=SAM(3)                                                   MTCH1590
      ISAM(4)=SAM(4)                                                   MTCH1600
C                                                                      MTCH1610
C     TEST FOR PHONY SAMIS                                             MTCH1620
C                                                                      MTCH1630
7     IF(SAM(3).NE.0) GO TO 8                                          MTCH1640
      IF(ITRACE.NE.1) GO TO 23                                         MTCH1650
      WRITE(6,93)                                                      MTCH1660
93    FORMAT(' PHONY SAMIS')                                           MTCH1670
23    CALL PHONY                                                       MTCH1680
      GO TO 6                                                          MTCH1690
C                                                                      MTCH1700
C     FIRST LOOP THROUGH PROGRAM &                                     MTCH1710
C                                                                      MTCH1720
8     IF(LOOP.EQ.0) GO TO 10                                           MTCH1730
```

```
C                                                                       MTCH1740
C     SAME SAMIS AVAILABILITY AS PREVIOUS ONE &                         MTCH1750
C                                                                       MTCH1760
      IF(SAM(1).NE.ISAM(1)) GO TO 14                                    MTCH1770
      IF(SAM(2).NE.ISAM(2)) GO TO 14                                    MTCH1780
      IF(SAM(3).NE.ISAM(3)) GO TO 14                                    MTCH1790
      IF(ISONLY.EQ.1) GO TO 11                                          MTCH1800
C                                                                       MTCH1810
C     SAMIS AND DMAF AVAILABILITY MATCH &                               MTCH1820
C                                                                       MTCH1830
10    IF(SAM(1  ).NE.DMAF(3)) GO TO 12                                  MTCH1840
      IF(SAM(2  ).NE.DMAF(4)) GO TO 12                                  MTCH1850
      IF(SAM(3  ).NE.DMAF( 5))GO TO 12                                  MTCH1860
      IDONLY=0                                                          MTCH1870
      ISONLY=0                                                          MTCH1880
      IF(ITRACF.NE.1) GO TO 11                                          MTCH1890
      WRITE(6,95)                                                       MTCH1900
95    FORMAT(' SAMIS & DMAF MATCH')                                     MTCH1910
C                                                                       MTCH1920
C     DETERMINE TYPE OF MAN DAY FIGURES TO BE USED                      MTCH1930
C                                                                       MTCH1940
11    CALL MANDAY                                                       MTCH1950
      SAMD=SAMD+MD                                                      MTCH1960
C                                                                       MTCH1970
C     UPDATE STATS FOR ZERO MANDAYS AND ALTS ) 750 MAN DAYS             MTCH1980
C                                                                       MTCH1990
      CALL MD0750                                                       MTCH2000
C                                                                       MTCH2010
C     ERROR CHECK SWBS NUMBER                                           MTCH2020
C                                                                       MTCH2030
      CALL SWBS                                                         MTCH2040
      IF(ITRACE.NE.1) GO TO 24                                          MTCH2050
      WRITE(6,96)                                                       MTCH2060
96    FORMAT(' CALLING MANDAY,MD0750,SWBS,& NEWALT')                    MTCH2070
C                                                                       MTCH2080
C     REPORT ON NEW ALTS                                                MTCH2090
C                                                                       MTCH2100
24    CALL NEWALT                                                       MTCH2110
      J=J+1                                                             MTCH2120
      LOOP=1                                                            MTCH2130
      ISAM(1)=SAM(1)                                                    MTCH2140
      ISAM(2)=SAM(2)                                                    MTCH2150
      ISAM(3)=SAM(3)                                                    MTCH2160
      ISAM(4)=SAM(4)                                                    MTCH2170
      GO TO 6                                                           MTCH2180
C                                                                       MTCH2190
C     REPORT ON AVAILABILITY MISMATCHES                                 MTCH2200
C                                                                       MTCH2210
12    CALL AVOTF                                                        MTCH2220
      MFLAG=0                                                           MTCH2230
      IF(ITRACF.NE.1) GO TO 25                                          MTCH2240
      WRITE(6,97) IDONLY,ISONLY                                         MTCH2250
97    FORMAT(' DMAF & SAMIS MISMATCH',2I3)                              MTCH2260
25    IF(IDONLY.EQ.1) GO TO 1                                           MTCH2270
      IF(ISONLY.EQ.1) GO TO 11                                          MTCH2280
14    NALT=J-1                                                          MTCH2290
      J=1                                                               MTCH2300
      IF(ISONLY+IDONLY.EQ.0) MFLAG=1                                    MTCH2310
      IF(ITRACE.NE.1) GO TO 26                                          MTCH2320
      WRITE(6,98)                                                       MTCH2330
```

```
98    FORMAT(' SAMIS AVAIL. COMP., CALLING ZERO25 & PER750')              MTCH2340
C                                                                         MTCH2350
C     REPORT ON ZERO MAN DAYS                                             MTCH2360
C                                                                         MTCH2370
26    CALL ZERO25                                                         MTCH2380
      IZMD=0                                                              MTCH2390
      NONZMD=0                                                            MTCH2400
      AMT=0                                                               MTCH2410
      SAMD=0.                                                             MTCH2420
C                                                                         MTCH2430
C     REPORT ON ALTS < 750 MAN DAYS                                       MTCH2440
C                                                                         MTCH2450
      CALL PER750                                                         MTCH2460
      IF(IENDSM.EQ.1) GO TO 1                                             MTCH2470
      IF(ISONLY.EQ.1) GO TO 10                                            MTCH2480
      GO TO 2                                                             MTCH2490
C                                                                         MTCH2500
C     DMAF AND SAMIS COMPLETED ?                                          MTCH2510
C                                                                         MTCH2520
700   IF(IENDSM.NE.0 ) GO TO 16                                           MTCH2530
      IENDMF=1                                                            MTCH2540
      CALL AVDIF                                                          MTCH2550
      GO TO 11                                                            MTCH2560
800   IENDSM=1                                                            MTCH2565
      IF(IENDMF.NE.0 ) GO TO 15                                           MTCH2570
      IENDSM=1                                                            MTCH2580
      GO TO 14                                                            MTCH2590
810   CALL AVDIF                                                          MTCH2600
      GO TO 1                                                             MTCH2610
15    IF(ISONLY.EQ.1.OR.IDONLY.EQ.1) MFLAG=0                              MTCH2612
      CALL ZERO25                                                         MTCH2614
      CALL PER750                                                         MTCH2616
16    CALL FYPHON                                                         MTCH2620
      POUT=FLOAT(KOUT)/FLOAT(KIN+KOUT)                                    MTCH2630
      AKDG=FLOAT(KDG)/FLOAT(KOUT)                                         MTCH2640
      WRITE(9,169) POUT,AKDG                                              MTCH2650
169   FORMAT(//' PROPORTION OF AVAILABILITIES OUTSIDE RANGE 0.9--1.35 ='MTCH2660
     .   ,F7.3,/,' PROPORTION OF AVAILABILITIES WHERE SAMIS > DMAF',     MTCH2670
     .  ' OUTSIDE RANGE 0.9--1.35 =',F7.3)                               MTCH2680
      STOP                                                                MTCH2690
      END                                                                 MTCH2700
```

```
      SUBROUTINE AVDIF                                                  MTCH2710
C                                                                       MTCH2720
C      THIS ROUTINE REPORTS AVAILABILITIES WHICH ARE UNIQUE TO          MTCH2730
C            SAMIS OR DMAF                                              MTCH2740
C                                                                       MTCH2750
      COMMON /ONE/SAM(22),ISAM(4),IPUN,ITRACE,IAEND                     MTCH2760
      COMMON /THREE/DMAF(22),IENDSM,IENDMF,IDONLY,ISONLY                MTCH2770
      INTEGER SAM,DMAF                                                  MTCH2780
C                                                                       MTCH2790
C      IF EITHER FILE IS COMPLETED, NO TESTING IS NECESSARY             MTCH2800
C                                                                       MTCH2810
      IF(IENDSM.EQ.1) GO TO 14                                          MTCH2820
      IF(IENDMF.EQ.1) GO TO 24                                          MTCH2830
C                                                                       MTCH2840
C      DETERMINE THE FILE WHICH UNIQUELY CONTAINS THE ALT               MTCH2850
C                                                                       MTCH2860
      IF(SAM(1)-DMAF(3)) 20,2,10                                        MTCH2870
2     IF(SAM(2)-DMAF(4)) 20,3,10                                        MTCH2880
3     IF(SAM(3)-DMAF( 5)) 20,4,10                                       MTCH2890
4     WRITE(6,5)(SAM(IA),IA=1,3),(DMAF(IA),IA=2,4)                      MTCH2900
5     FORMAT(' IRRECONCILABLE SEQUENCE ERROR'/' SAMIS ',A4,2I5,         MTCH2910
     1    ' DMAF ',A4,2I5)                                             MTCH2920
      RETURN                                                            MTCH2930
C                                                                       MTCH2940
C      REPORT ON AVAILIBILITIES ONLY IN DMAF                            MTCH2950
C                                                                       MTCH2960
10    IF(IPUN.NE.1) GO TO 14                                            MTCH2970
      PUNCH 15,DMAF(3),DMAF(4),DMAF( 5)                                 MTCH2980
15    FORMAT(A4,I5,I4)                                                  MTCH2990
14    WRITE(1,16) DMAF(3),DMAF(4),DMAF( 5),DMAF(13)                     MTCH3000
16    FORMAT(5X,A4,I4,I5,I6)                                            MTCH3010
C                                                                       MTCH3020
C      SET FLAG TO SHOW DMAF ONLY                                       MTCH3030
C                                                                       MTCH3040
      ISONLY=0                                                          MTCH3050
      IDONLY=1                                                          MTCH3060
      RETURN                                                            MTCH3070
C                                                                       MTCH3080
C      REPORT ON AVAILIBILITIES ONLY IN SAMIS                           MTCH3090
C                                                                       MTCH3100
20    IF(IPUN.NE.1) GO TO 24                                            MTCH3110
      PUNCH 25,(SAM(IA),IA=1,3)                                         MTCH3120
25    FORMAT(A4,I5,I4)                                                  MTCH3130
24    WRITE(13,16)(SAM(IA),IA=1,4)                                      MTCH3140
C                                                                       MTCH3150
C      SET FLAG TO SHOW SAMIS ONLY                                      MTCH3160
C                                                                       MTCH3170
      IDONLY=0                                                          MTCH3180
      ISONLY=1                                                          MTCH3190
      RETURN                                                            MTCH3200
      END                                                               MTCH3210
```

```
      SUBROUTINE FYPHON                                                 MTCH3220
C                                                                       MTCH3230
C      THIS ROUTINE REPORTS MAN DAYS OF PHONY AVAILABILITIES BY FY AND  MTCH3240
C         NOTES LARGE INDIVIDUAL PHONY AVAILABILITIES                   MTCH3250
C                                                                       MTCH3260
      COMMON /TWO/PHOSAM(   5,2),BIGSAM(500,5),KPHO,LPHO,LARGE         MTCH3270
      COMMON /FIVE/ KS,AMT,IFXYR,MD,NEW,SAMD,MFLAG,KIN,KOUT,KOG         MTCH3280
      INTEGER PHOSAM,BIGSAM,BSAM(5,300,4)                               MTCH3290
      DIMENSION KOUNT(5)                                                MTCH3300
C                                                                       MTCH3310
C   INITIALIZE COUNTERS AND SUMMERS                                     MTCH3320
C                                                                       MTCH3330
      DO 10 JJ=1,4                                                      MTCH3340
      DO 10 KK=1,300                                                    MTCH3350
      DO 10 II=1,5                                                      MTCH3360
      BSAM(II,KK,JJ)=0                                                  MTCH3370
10    KOUNT(II)=0                                                       MTCH3380
C                                                                       MTCH3390
C   STORE INDIVIDUAL LARGE MAN DAY FIGURES BY FY                        MTCH3400
C                                                                       MTCH3410
      DO 30 JJ=1,LPHO                                                   MTCH3420
      II=BIGSAM(JJ,5)-IFXYR+1                                           MTCH3430
      KOUNT(II)=KOUNT(II)+1                                             MTCH3440
      BSAM(II,KOUNT(II),1)=BIGSAM(JJ,1)                                 MTCH3450
      BSAM(II,KOUNT(II),2)=BIGSAM(JJ,2)                                 MTCH3460
      BSAM(II,KOUNT(II),3)=BIGSAM(JJ,3)                                 MTCH3470
30    BSAM(II,KOUNT(II),4)=BIGSAM(JJ,4)                                 MTCH3480
C                                                                       MTCH3490
C     REPORT PHONY AVAILABILITIES                                       MTCH3500
C                                                                       MTCH3510
      DO 45 LL=1,5                                                      MTCH3520
      IYR=IFXYR+LL-1                                                    MTCH3530
      IK=KOUNT(LL)                                                      MTCH3540
      WRITE(6,40)IYR,(PHOSAM(LL ,KK),KK=1,2),((BSAM(LL ,IL,KK),KK=1,4),MTCH3550
     $   IL=1,IK)                                                       MTCH3560
40    FORMAT(/I3,2I8,8X,4(A4,I4,I6,'---',I5,3X)                         MTCH3570
     .   /,90(27X,4(A4,I4,I6,'---',I5,3X)/))                           MTCH3580
45    CONTINUE                                                          MTCH3590
      RETURN                                                            MTCH3600
      END                                                               MTCH3610
```

```
      SUBROUTINE MANDAY                                                 MTCH3620
C                                                                       MTCH3630
C      THIS ROUTINE SELECTS THE TYPE OF MAN DAYS USED BY THE PROGRAM    MTCH3640
C                                                                       MTCH3650
      COMMON /[illegible]E/SAM(22),ISAM(4),IPUN,ITRACE,IAEND            MTCH3660
      COMMON /[illegible]IVE/ KS,AMT,IEXYR,MD,NEW,SAMD,MFLAG,KIN,KOUT,KDG MTCH3670
      INTEGER CV,SAM,AMT,CVN,CVT                                        MTCH3680
      DATA CV/2HCV/,CVN/3HCVN/,CVT/3HCVT/                               MTCH3690
C                                                                       MTCH3700
C     USE FMP FIGURES FOR CV                                            MTCH3710
C                                                                       MTCH3720
      IF(SAM(1).EQ.CV) GO TO 2                                          MTCH3730
      IF(SAM(1).EQ.CVN)GO TO 2                                          MTCH3740
      IF(SAM(1).EQ.CVT)GO TO 2                                          MTCH3750
C                                                                       MTCH3760
C     USE FMP FIGURES FOR EXECUTION OR BUDGET YEAR                      MTCH3770
C                                                                       MTCH3780
      IF(SAM(4).EQ.IEXYR.OR.SAM(4).EQ.IEXYR+1) GO TO 2                  MTCH3790
C                                                                       MTCH3800
C     USE AMT FIGURES FOR REMAINING CASES                               MTCH3810
C                                                                       MTCH3820
      MD=SAM(7)                                                         MTCH3830
      RETURN                                                            MTCH3840
2     MD=SAM(8)                                                         MTCH3850
      IF(SAM(1).EQ.CV) RETURN                                           MTCH3860
      IF(SAM(1).EQ.CVN.OR.SAM(1).EQ.CVT) RETURN                         MTCH3870
C                                                                       MTCH3880
C     REPLACE FMP ZERO MAN DAYS WITH AMT NONZERO MAN DAYS               MTCH3890
C                                                                       MTCH3900
      IF(SAM(8).NE.0.OR.SAM(7).EQ.0) RETURN                             MTCH3910
      AMT=AMT+1                                                         MTCH3920
      RETURN                                                            MTCH3930
      END                                                               MTCH3940
```

```
      SUBROUTINE MD0750                                                  MTCH3950
C                                                                        MTCH3960
C     THIS ROUTINE COMPILES DATA ON ALTS < 750 MAN DAYS AND ON ZERO      MTCH3970
C        MAN DAYS                                                        MTCH3980
C                                                                        MTCH3990
      COMMON /ONE/SAM(22),ISAM(4),IPUN,ITRACE,IAEND                      MTCH4000
      COMMON /FOUR/LT750,IGT750,NONZMD,IZMD,NALT                         MTCH4010
      COMMON /FIVE/ KS,AMT,IEXYR,MD,NEW,SAMD,MFLAG,KIN,KOUT,KDG         MTCH4020
      INTEGER SAM                                                        MTCH4030
      IF(MD.LE.750) GO TO 2                                              MTCH4040
C                                                                        MTCH4050
C     UPDATE COUNTER FOR ALTS > 750 MAN DAYS                             MTCH4060
C                                                                        MTCH4070
      IGT750=IGT750+1                                                    MTCH4080
      GO TO 3                                                            MTCH4090
C                                                                        MTCH4100
C     UPDATE COUNTER FOR ALTS < 750 MAN DAYS                             MTCH4110
C                                                                        MTCH4120
2     LT750=LT750+1                                                      MTCH4130
3      IF(MD.NE.0) GO TO 4                                               MTCH4140
C                                                                        MTCH4150
C     UPDATE COUNTER FOR ZERO MAN DAY ALTS                               MTCH4160
C                                                                        MTCH4170
      IZMD=IZMD+1                                                        MTCH4180
      WRITE(15,45)SAM(10),SAM(11),(SAM(L),L=1,4),(SAM(L),L=13,20)        MTCH4190
45    FORMAT(        5X,A4,A1,3X,A4,1X,I4,   2I6,  2X,7A4,A2)            MTCH4200
      RETURN                                                             MTCH4210
C                                                                        MTCH4220
C        UPDATE COUNTER FOR NONZERO MAN DAY ALTS                         MTCH4230
C                                                                        MTCH4240
4     NONZMD=NONZMD+1                                                    MTCH4250
      RETURN                                                             MTCH4260
      END                                                                MTCH4270
```

```
      SUBROUTINE NEWALT                                                 MTCH4280
C - - -   THIS ROUTINE COMPARES SAMIS WITH THE ALTS SCOPE LIST TO       MTCH4290
C - - -   DETERMINE IF A NEW ALT HAS APPEARED IN SAMIS.                 MTCH4300
      COMMON /ONE/SAM(22),ISAM(4),IPUN,ITRACE,IAEND                     MTCH4310
      COMMON /FIVE/ KS,AMT,IEXYR,MO,NEW,SAMC,MFLAG,KIN,KOUT,KDG         MTCH4320
      INTEGER ALTS(4,500), SAM                                          MTCH4330
      IF(ITRACE.NE.1) GO TO 14                                          MTCH4340
      WRITE(6,60) (SAM(N),N=1,3),MO,NEW                                 MTCH4350
60    FORMAT('    IN ALTS',2X,A4,I5,I4,'  MO=',I6,'   NEW=',I6)         MTCH4360
C - - -   DO NOT CONSIDER SMALL ALTS.                                   MTCH4370
14    IF(MO.LE.750) RETURN                                              MTCH4380
      IF(IAEND.EQ.1) GO TO 30                                           MTCH4390
      IF(NEW .NE.0) GO TO 16                                            MTCH4400
1     IF(ITRACE.NE.1) GO TO 13                                          MTCH4410
      WRITE(6,90) (ALTS(I,1),I=1,4)                                     MTCH4420
90    FORMAT(' READING ALTS',1X,A4,I5,1X,A4,A1)                         MTCH4430
13    NEW=1                                                             MTCH4440
      DO 10 J=1,500                                                     MTCH4450
C - - -   READ ALT SCOPE LIST.                                         MTCH4460
      READ(12,5,END=15) (ALTS(I,J),I=1,4)                               MTCH4470
5     FORMAT(A4,I4,3X,A4,A1//)                                          MTCH4480
6     IF(J.EQ.1) GO TO 9                                                MTCH4490
C - - -   SAME SHIP TYPE AS PREVIOUS ONE ?                             MTCH4500
      IF(ALTS(1,J).EQ.ALTS(1,J-1)) GO TO 9                              MTCH4510
      BACKSPACE 12                                                      MTCH4520
      GO TO 16                                                          MTCH4530
9     JJ=J                                                              MTCH4540
10    CONTINUE                                                          MTCH4550
C - - -   REPORT ERROR CONDITION.                                       MTCH4560
      WRITE(6,11) (ALTS(I,1),I=1,4)                                     MTCH4570
11    FORMAT(' ALT ARRAY OVERFLOW',A4,I5,1X,A4,A1)                      MTCH4580
      GO TO 50                                                          MTCH4590
15    IAEND=1                                                           MTCH4600
16    IF(ITRACE.NE.1) GO TO 12                                          MTCH4610
      WRITE(6,61) SAM(1),ALTS(1,1)                                      MTCH4620
61    FORMAT(' SAM=',A4,' ALTS=',A4)                                    MTCH4630
C - - -   COMPARE SAMIS AND ALTS.                                       MTCH4640
12    IF(SAM(1)-ALTS(1,1)) 41,30,1                                      MTCH4650
30    DO 40 K=1,JJ                                                      MTCH4660
      IF(ALTS(3,K).NE.SAM(10)) GO TO 40                                 MTCH4670
      IF(ALTS(4,K).EQ.SAM(11)) GO TO 50                                 MTCH4680
40    CONTINUE                                                          MTCH4690
C - - -   WRITE MESSAGE FOR NEW ALT.                                    MTCH4700
41    WRITE(9,45) SAM(10),SAM(11),(SAM(L),L=1,4),(SAM(L),L=13,20)       MTCH4710
45    FORMAT(        5X,A4,A1,3X,A4,1X,I4,   2I6,  2X,7A4,A2)           MTCH4720
      IF(IPUN.NE.1) GO TO 50                                            MTCH4730
      PUNCH 2,SAM(10),SAM(11),SAM(1),SAM(2),SAM(3),(SAM(IA),IA=13,20)   MTCH4740
2     FORMAT(' ALT ID ',A4,A1,1X,A4,1X,2I4,1X,7A4,A2)                   MTCH4750
50    RETURN                                                            MTCH4760
      END                                                               MTCH4770
```

```
      SUBROUTINE PER750                                                 MTCH4780
C                                                                       MTCH4790
C     THIS ROUTINE REPORTS THE PERCENTAGE, BY CLASS, OF ALTS < 750      MTCH4800
C             MAN DAYS                                                  MTCH4810
C                                                                       MTCH4820
      COMMON /ONE/SAM(22),ISAM(4),IPUN,ITRACE,IAEND                     MTCH4830
      COMMON /THREE/DMAF(22),IENDSM,IENDMF,IDONLY,ISONLY                MTCH4840
      COMMON /FOUR/LT750,IGT750,NONZMD,IZMD,NALT                        MTCH4850
      INTEGER SAM                                                       MTCH4860
      IF(IENDSM.NE.0) GO TO 5                                           MTCH4865
C                                                                       MTCH4870
C     SAME SAMIS CLASS AS PREVIOUS RECORD ?                             MTCH4880
C                                                                       MTCH4890
      IF(SAM(1).EQ.ISAM(1)) RETURN                                      MTCH4900
5     PER=FLOAT(LT750)/FLOAT(IGT750+LT750)                              MTCH4910
      IGT750=0                                                          MTCH4920
      LT750=0                                                           MTCH4930
C                                                                       MTCH4940
C     REPORT PER CENT MAN DAYS < 750                                    MTCH4950
C                                                                       MTCH4960
      WRITE(10,2)ISAM(1),PER                                            MTCH4970
2     FORMAT(5X,A4,5X,F6.3)                                             MTCH4980
      RETURN                                                            MTCH4990
      END                                                               MTCH5000
```

```
      SUBROUTINE SWBS                                                   MTCH5430
C                                                                       MTCH5440
C     THIS ROUTINE CHECKS THE LEGALITY OF THE SWBS NUMBER               MTCH5450
C                                                                       MTCH5460
      COMMON /ONE/SAM(22),ISAM(4),IPUN,ITRACE,IAEND                     MTCH5470
      INTEGER SAM                                                       MTCH5480
C                                                                       MTCH5490
C     LEGAL SWBS NUMBER?                                                MTCH5500
C                                                                       MTCH5510
      IF(SAM(6).GT.99) RETURN                                           MTCH5520
C                                                                       MTCH5530
C     REPORT ILLEGAL SWBS NUMBER                                        MTCH5540
C                                                                       MTCH5550
      IF(IPUN.NE.1) GO TO 4                                             MTCH5560
      PUNCH 2,SAM(1),SAM(2),SAM(3),SAM(10),SAM(11),SAM(6)               MTCH5570
2     FORMAT(A4,2I4,1X,A4,A1,I8)                                        MTCH5580
4     WRITE(2,6) SAM(6),(SAM(IW),IW=1,3),SAM(10),SAM(11),SAM(4)         MTCH5590
     .    ,(SAM(IW),IW=13,20)                                          MTCH5600
6     FORMAT(5X,T8,5X,A4,I4,5X,I4,5X,A4,A1,I4,9X,7A4,A2)                MTCH5610
      RETURN                                                            MTCH5620
      END                                                               MTCH5630
```

```
      SUBROUTINE PHONY                                                  MTCH5010
C                                                                       MTCH5020
C     THIS ROUTINE COMPILES DATA ON SAMIS PHONY AVAILABILITIES          MTCH5030
C                                                                       MTCH5040
      COMMON /ONE/SAM(22),ISAM(4),IPUN,ITRACE,IAEND                     MTCH5050
      COMMON /TWO/PHOSAM(   5,2),BIGSAM(500,5),KPHO,LPHO,LARGE          MTCH5060
      COMMON /FIVE/ KS,AMT,IEXYR,MD,NEW,SAMD,MFLAG,KIN,KOUT,KDG         MTCH5070
      INTEGER PHOSAM,BIGSAM,SAM                                         MTCH5080
C                                                                       MTCH5090
C     ONLY STORE DATA FOR THE EXECUTION YEAR AND FOUR SUCCEEDING YEARS  MTCH5100
C                                                                       MTCH5110
      IF(SAM(4)-IEXYR.GT.4) RETURN                                      MTCH5120
      IF(SAM(4).LT.IEXYR) RETURN                                        MTCH5130
C                                                                       MTCH5140
C     SUM MAN DAYS BY FY FOR PHONY AVAILABILITY                         MTCH5150
C                                                                       MTCH5160
      KPHO=SAM(4)-IEXYR+1                                               MTCH5170
      PHOSAM(KPHO,1)=PHOSAM(KPHO,1)+SAM(8)                              MTCH5180
      PHOSAM(KPHO,2)=PHOSAM(KPHO,2)+SAM(7)                              MTCH5190
      IF(SAM(8).LT.LARGE.AND.SAM(7).LT.LARGE) GO TO 20                  MTCH5200
C                                                                       MTCH5210
C      CHECK FOR ARRAY OVERFLOW                                         MTCH5220
C                                                                       MTCH5230
      IF(LPHO.GT.500) GO TO 40                                          MTCH5240
      LPHO=LPHO+1                                                       MTCH5250
C                                                                       MTCH5260
C     STORE MAN DAYS AND FY FOR LARGE INDIVIDUAL PHONY AVAILABILITY     MTCH5270
C                                                                       MTCH5280
      BIGSAM(LPHO,1)=SAM(1)                                             MTCH5290
      BIGSAM(LPHO,2)=SAM(2)                                             MTCH5300
      BIGSAM(LPHO,3)=SAM(8)                                             MTCH5310
      BIGSAM(LPHO,4)=SAM(7)                                             MTCH5320
      BIGSAM(LPHO,5)=SAM(4)                                             MTCH5330
20    RETURN                                                            MTCH5340
C                                                                       MTCH5350
C     REPORT ON ERROR CONDITION                                         MTCH5360
C                                                                       MTCH5370
40    WRITE(6,45)      LPHO,SAM(1),SAM(2),SAM(3)                        MTCH5380
45    FORMAT(' BIGSAM ARRAY OVERFLOW',I4,A4,2I4)                        MTCH5390
      LPHO=LPHO+1                                                       MTCH5400
      RETURN                                                            MTCH5410
      END                                                               MTCH5420
```

```
      SUBROUTINE ZERO25                                                 MTCH5640
C                                                                       MTCH5650
C   THIS ROUTINE REPORTS ON AVAILABILITIES WITH MORE THAN 25 PER CENT ZEMTCH5660
C    MAN DAYS, AND PUNCHES UPDATE CARDS FOR SUBSTITUTING AMT MAN        MTCH5670
C     DAYS FOR FMP ZERO MAN DAYS                                        MTCH5680
C                                                                       MTCH5690
      COMMON /ONE/SAM(22),ISAM(4),IPUN,ITRACE,IAEMD                     MTCH5700
      COMMON /THREE/DMAF(22),IENDSM,IENDMF,IDONLY,ISONLY                MTCH5710
      COMMON /FOUR/LT750,IGT750,NONZMD,IZMD,NALT                        MTCH5720
      COMMON /FIVE/ KS,AMT,IEXYR,MD,NEW,SAMD,MFLAG,KIN,KOUT,KDG         MTCH5730
      INTEGER SAM,DMAF,AMT                                              MTCH5740
      ZFAC=FLOAT(IZMD)/FLOAT(IZMD+NONZMD)                               MTCH5750
C                                                                       MTCH5760
C      ZERO MAN DAYS < 25 PER CENT OF TOTAL ?                           MTCH5770
C                                                                       MTCH5780
      IF(ZFAC.LE.0.25) GO TO 9                                          MTCH5790
      WRITE(14,2)(ISAM(I),I=1,4),ZFAC                                   MTCH5800
2     FORMAT(4X,A4,I5,I6 ,I5,21X,F6.3)                                  MTCH5810
C                                                                       MTCH5820
C       REPLACE FMP ZERO MAN DAYS BY AMT MAN DAYS                       MTCH5830
C                                                                       MTCH5840
5     IF(AMT.EQ.0) GO TO 9                                              MTCH5850
      IF(ITRACE.EQ.1) WRITE(6,20) IZMD,NONZMD,AMT                       MTCH5860
20    FORMAT(3I20)                                                      MTCH5870
      AZMD=IZMD-AMT                                                     MTCH5880
      ANONZ=NONZMD+AMT                                                  MTCH5890
      ZFAC=AZMD/(AZMD+ANONZ)                                            MTCH5900
C                                                                       MTCH5910
C     REVISED ZERO MAN DAYS < 25 PER CENT ?                             MTCH5920
C                                                                       MTCH5930
      IF(ZFAC.GT.0.25) GO TO 9                                          MTCH5940
      WRITE(14,6) ZFAC                                                  MTCH5950
6     FORMAT(45X,F6.3,5X,'FMP REPLACED BY AMT')                         MTCH5960
      IF(IPUN.NE.1) GO TO 9                                             MTCH5970
      PUNCH 4, (SAM(K),K=1,3),SAM(8),SAM(7)                             MTCH5980
4     FORMAT(A4,I5,I4,2I5)                                              MTCH5990
9     NONZMD=0                                                          MTCH6000
      IZMD=0                                                            MTCH6010
      IF(MFLAG.EQ.1) GO TO 15                                           MTCH6020
      WRITE(16,25) (ISAM(I),I=1,4),SAMD                                 MTCH6030
25    FORMAT(5X,A4,2I5,I6,F11.0)                                        MTCH6040
      RETURN                                                            MTCH6050
C                                                                       MTCH6060
C     COMPARE SAMIS WITH DMAF MAN DAY TOTALS                            MTCH6070
C                                                                       MTCH6080
15    IF(ITRACE.NE.1) GO TO 11                                          MTCH6090
      WRITE(6,10) SAMD,DMAF(16),DMAF(19)                                MTCH6100
10     FORMAT(F10.2,I10,I10)                                            MTCH6110
11    IF(DMAF(19).EQ.0) GO TO 12                                        MTCH6120
      DMAFD=DMAF(16)*DMAF(19)/100.                                      MTCH6130
      PROP=SAMD/DMAFD                                                   MTCH6140
      IF(PROP.GT.1.35.OR.PROP.LT.0.9) GO TO 7                           MTCH6150
      WRITE(9,8) (ISAM(I),I=1,4), PROP,SAMD,DMAFD                       MTCH6160
      KIN=KIN+1                                                         MTCH6170
C                                                                       MTCH6172
C     COMPUTE PROPORTION WITHIN ACCEPTABLE RANGE                        MTCH6174
      RETURN                                                            MTCH6180
12    WRITE(9,13) (ISAM(I),I=1,4),SAMD                                  MTCH6190
13    FORMAT(5X,A4,2I5,I6,'  *****',F11.0,5X,'DMAF 0/0 ALT   0')        MTCH6200
      RETURN                                                            MTCH6210
7     WRITE(9,8) (ISAM(I),I=1,4), PROP,SAMD,DMAFD                       MTCH6220
8     FORMAT(5X,A4,I5,I5,I6,F6.2,F11.0,F14.0)                           MTCH6230
      IF(PROP.GT.1.0) KDG=KDG+1                                         MTCH6240
      KOUT=KOUT+1                                                       MTCH6250
      RETURN                                                            MTCH6260
      END                                                               MTCH6270
```

3.1.6 GLOSSARY

COMMON VARIABLES

Common Block /ONE/

IAEND	Flag set to "1" if processing of the Major Alterations File is completed; otherwise it is "0".
IPUN	Flag set to "1" if punched card output is desired; otherwise it is "0".
ISAM(4)	Previous values of certain items in the SAM array, i.e., ship type, hull number, sequence number, and fiscal year.
ITRACE	Flag set to "1" if intermediate processing output is desired; otherwise it is "0".
SAM(22)	One record of the SAMIS File; see Section 2.1.3.3.

Common Block /TWO/

BIGSAM(500,3)	Array of large unsequenced SAMIS alterations where the first subscript refers to the number of such availabilities and the second to (1) AMT mandays, (2) FMP mandays, and (3) fiscal year.
KPHO	Number of unsequenced SAMIS alterations.
LARGE	Input number of mandays considered large for an unsequenced SAMIS alteration.
LPHO	Number of unsequenced SAMIS alterations requiring more than "LARGE" mandays.
PHOSAM(5,2)	Array of all unsequenced SAMIS alterations where the first subscript refers to five consecutive years, and the second to (1) AMT mandays and (2) FMP mandays.

Common Block /THREE/

DMAF(22)	One record of the DMAF-1 file; see Section 2.1.3.2.
IDONLY	Flag set to "1" if an availability appears in the DMAF-1 file but not in the SAMIS file; otherwise it is "0".
IENDMF	Flag set to "1" if processing of the DMAF-1 file is completed; otherwise it is "0".
IENDSM	Flag is set to "1" if processing of the SAMIS file is completed; otherwise it is "0".
ISONLY	Flag set to "1" if an availability appears in the SAMIS but not the DMAF-1; otherwise it is "0".

Common Block /FOUR/

IGT750	Number of alterations in a SAMIS availability requiring more than 750 mandays.
IZMD	Number of alterations in a SAMIS availability requiring zero mandays.
LT750	Number of alterations in a SAMIS availability requiring less than 750 mandays.
NALT	Number of alterations in a SAMIS availability.
NONZMD	Number of alterations in a SAMIS availability requiring nonzero mandays.

Common Block /FIVE/

AMT	Number of alterations using AMT estimates.
IEXYR	Input execution year.
MD	Mandays required for an alteration.
MFLAG	Flag set to "1" if a match appears in the DMAF-1 and SAMIS files; otherwise it is "0".
NEW	Flag set to "1" after the first read of the Major Alterations File; otherwise it is "0".
SAMD	Total mandays for a SAMIS availability.

LOCAL VARIABLES

Main Program

I	Index for DMAF-1 availabilities which should be skipped.
IB	Index for first three elements of a SAMIS record; ship type, hull number, and sequence number.
IBLANK	A one-character blank space.
IP	Index for number of fiscal years for unsequenced alterations.
IQ	Index for AMT and FMP mandays for unsequenced alterations.
ISKIP(8)	DMAF work types not to be processed.
J	One less than the number of alterations in a SAMIS availability.
LOOP	Flag set to "1" after reading first DMAF-1 record; otherwise it is "0".
TAF	Variable used to test for ship type TAF.
UNOS	Variable used to test for UNOS data.

Subroutine MANDAY

CV	Variable used to test for ship type CV.
CVN	Variable used to test for ship type CVN.
CVT	Variable used to test for ship type CVT.

Subroutine NEWALT

ALTS(4,500)	All major alterations which apply to a particular ship type; the first subscript refers to (1) ship type, (2) class, and (3 and 4) alteration number, and the second subscript refers to the number of such alterations.
I	Index for the parameters of a MAF record.

Subroutine NEWALT (Continued)

IA	Index used for I/O statements.
J	Index for the records read from the Major Alterations File.
JJ	Number of records in the Major Alterations File which apply to a particular ship type.
K	Index equivalent to "J".
L	Index used for I/O statements.
N	Index for first three elements of a SAMIS record.

Subroutine ZERO25

ANONZ	Floating point form of "NONZMD".
ASMD	Floating point form of "IZMD".
I	Index used for I/O statements and also number of alterations in a SAMIS availability.
K	Index used for I/O statements.
PROP	Ratio of SAMIS mandays to DMAF alteration mandays for an availability.
ZFAC	Proportion of zero-manday alterations in a SAMIS availability.

Subroutine PER750

PER	Proportion of alterations requiring less the 750 mandays.

Subroutine FYPHON

BSAM(5,300,2)	Individual unsequenced SAMIS alterations with large manday requirements, the first subscript refers to the fiscal year, the second to the number of such alterations, and the third to (1) AMT mandays and (2) FMP mandays.
II	Index for fiscal years of interest, i.e., IEXYR,..., IEXYR + 4.

Subroutine FYPHON (Continued)

IK	Number of large unsequenced SAMIS alterations in a particular fiscal year.
IL	Index for I/O statements.
IYR	A particular year of the five consecutive years being processed.
JJ	Index for AMT and FMP mandays; also an index for the number of large unsequenced alterations.
KK	Index for the large unsequenced SAMIS alterations in a particular fiscal year.
KOUNT(5)	Number of large unsequenced SAMIS alterations for each of five consecutive fiscal years.
LL	Index for the five consecutive years being processed.

Subroutine AVDIF

IA	Index used for I/O statements.

3.1.7 SAMPLE RUN

A selected subset of the data files was used for the sample run. Runs made with complete data files may generate ten to twenty times as much output as this sample. Punched cards, as well as the intermediate output on unit 6, were not obtained. Selecting the option for intermediate output may increase the output volume by a factor of about four. The intermediate output is used mainly for debugging additions to the program, or for clarifying certain outputs that may seem unusual to the analyst.

All other reports generated by the program, as well as the input files, are shown here. In some cases only partial listings are included in this report.

Unit 5 - Card Input

The actual input card is punched as follows:

7800007500001.

Unit 3 - Depot Maintenance Assignment File, Version 1 (DMAF-1)

PUGETCGN	9	30 C	40179	40182AANNW792	82471	739000	0 9		1
PUGETCGN	9	30*C	40179	40182AANNW801	163508	739000	0 9		2
PUGETCGN	9	30*C	40179	40182AANNW802	164152	739000	0 9		3
PUGETCGN	9	30*C	40179	40182AANNW811	163582	739000	0 9		4
PUGETCGN	9	30*C	40179	40182AANNW812	123009	739000	14 9		5
PUGETCGN	9	30*C	40179	40182AANNW821	42207	739000	0 9		6
PUGETCGN	9	30*C	40179	40182AANNW822	68	739000	0 9		7
PUGETCGN	25	24 RA	11579	31579AANNW791	30000	30000	20 1		8
PUGETCGN	25	30 RO	60182	80183AANNW822	75760	298507	1419		9
PUGETCGN	35	11 RA	11579	31579AANNW791	12000	12000	100 1		10
PUGETCGN	35	0 RO	60181	80182AANNW812	75760	298507	1419		11
PUGETCGN	35	0*RO	60181	80182AANNW821	165233	298507	1419		12
PUGETCGN	35	0*RO	60181	80182AANNW822	57513	298507	1419		13
PUGETCGN	36	4 RA	11579	41679AANNW791	43925	47204	24 1		14
PUGETCGN	36	4*RA	11579	41679AANNW792	3278	47204	24 1		15
PUGETCGN	36	10 RO	41480	61481AANNW802	116368	278550	14 9		16
PUGETCGN	36	10*RO	41480	61481AANNW811	144621	278550	14 9		17
PUGETCGN	36	10*RO	41480	61481AANNW812	17560	278550	14 9		18
NORVACGN	37	4 RA	62178	82278AANNE782	20400	20400	39 :		19
NORVACGN	37	10 RO	10281	30582AANNE811	68369	278000	1413		20
NORVACGN	37	10*RO	10281	30582AANNE812	161821	278000	1413		21
NORVACGN	37	10*RO	10281	30582AANNE821	47808	278000	1413		22
NORVACGN	38	4 RA	803791	00279AANNE792	11955	12000	32 1		23
NORVACGN	38	4*RA	803791	80279AANNE801	44	12000	32 1		24
NORVACGN	38	10 RO	70182	90283AANNE822	69808	278000	913		25
PUGETCGN	39	4 RA	71579	91579AANNW792	12000	12000	100 1		26
CHASNCGN	40	4 RA	50182	70182AANNE822	12000	12000	100 1		27
NWPACCV	41	35 RA	71078	91178CVAPW782	40000	40000	4917		28
PUGETCV	41	36 RA	111078	11179CVANW791	40000	40000	4817		29
LBECHCV	41	40 RO	101280	101281CVANW811	179097	396045	0 1		30
LBECHCV	41	40*RO	101280	101281CVANW812	215472	396045	0 1		31
LBECHCV	41	40*RO	101280	101281CVANW821	1474	396045	0 1		32
LBECHCV	43	40 RO	113077	112978CVANW781	124004	342067	1724		33
LBECHCV	43	40*RO	113077	112978CVANW782	199985	342067	1724		34
LBECHCV	43	40*RO	113077	112978CVANW791	18076	342067	1724		35
D 12 CV	43	41 RA	31080	71180CVAPW801	2096	10000	017		36
D 12 CV	43	41*RA	31080	71180CVAPW802	7903	10000	017		37
D 06 CV	59	41 RA	110378	12979CVAPE791	73258	73258	3917		38
NORVACV	59	42 RA	50380	72980CVANE802	60000	60000	4317		39
NORVACV	59	43 RA	100181	10182CVANE821	60000	60000	4417		40
D 06 CV	60	53 RA	10678	40378CVAPE781	86977	89360	4017		41
D 06 CV	60	53*RA	10678	40378CVAPE782	2382	89360	4017		42
NORVACV	60	60 RO	420791	20179CVANE792	194944	240000	4723		43
NORVACV	60	60*RO	420791	20179CVANE801	45055	240000	4723		44
D 06 CV	60	61 RA	701821	00182CVAPE822	59484	60000	4217		45
PUGETCV	61	50 RO	21577	21578CVANW781	111606	443300	3824		46
D 11 CV	61	51 RA	20180	50180CVAPW801	44312	60000	42 1		47
D 11 CV	61	51*RA	20180	50180CVAPW802	15687	60000	42 1		48
D 11 CV	61	52 RA	901811	20181CVAPW812	14731	60000	46 1		49
D 11 CV	61	52*RA	901811	20181CVAPW821	45268	60000	46 1		50
NORVACV	62	40 RO	112177	101978CVANE781	140469	346352	4123		51
NORVACV	62	40*RO	112177	101978CVANE782	199596	346352	4123		52
NORVACV	62	40*RO	112177	101978CVANE791	6286	346352	4123		53
NORVACV	62	41 RA	901791	12679CVANE792	29389	69170	4217		54
NORVACV	62	41*RA	901791	12679CVANE801	39780	69170	4217		55
D 11 CV	62	42 RA	10281	40181CVAPW811	59925	60000	41 1		56
D 11 CV	62	42*RA	10281	40181CVAPW812	74	60000	41 1		57
D 11 CV	62	43 RA	50182	80182CVAPW822	60000	60000	41 1		58

Unit 4 - Ship Alteration Management Information System (SAMIS)

CGN	25	023	77	070411	00520	00520	DLGN00238	0025	NTDS-EXTEND CORE MEM UNIT	114480	79330	1
CGN	25	023	77	070411	00275	00275	DLGN00269	0025	NTDS REFRESHER MEMORY	54720	36507	2
CGN	25	024	79	925720	04500	04500	DLGN00233	0025	HARPOON	856400	856400	3
CGN	25	030	82	120436	00100	00100	DLGN00237	0025	INSTL T/T HIGH TEMP ALARM	20320	20320	4
CGN	25	030	82	120446	01000	01000	DLGN00234	0025	HF SECURE VOICE PARKHILL	226400	226400	5
CGN	25	030	82	120440	00412	00412	CGN 01084	0025	IMPROVE CRT/ARO	84160	84160	6
CGN	25	030	82	120	02000	02000	CGN 01076	0025	MUTE	452800	452800	7
CGN	25	030	82	120423	00500	00500	CGN 01088	0025	INSTL AN/URN () TACAN	115000	115000	8
CGN	25	030	82	120165	02300	02300	DLGN00226	0025	ASMD ADT FOR SPA 48A	501000	501000	9
CGN	25	030	82	120633	00600	00600	DLGN00219	0025	IMPRESSED CURRENT CATH MOD	108000	108000	10
CGN	25	030	82	120451	00000	00000	CGN 01089	0025	INSTL AN/SPS-10 SOLID STATE	0	0	11
CGN	25	030	82	120446	00500	00500	DLGN01063	0025	INSTL KW 46	113200	113200	12
CGN	25	030	82	120441	03000	03000	DLGN01062	0025	NAVY GROWTH RADIO	702400	702400	13
CGN	25	030	82	120441	01164	01164	DLGN00273	0025	NAVMACS A PLUS	230400	230400	14
CGN	25	030	82	120473	01000	01000	DLGN00270	0025	ASMD DECOYS SUPER RADC MK36 0	226400	226400	15
CGN	25	030	82	120410	09049	09049	DLGN00268	0025	ASMD PLAN-SM-2 CAPABILITY	1878820	1878820	16
CGN	25	030	82	120412	01500	01500	DLGN00266	0025	ASMD PLAN-INSTL IRST SET	339600	339600	17
CGN	25	030	82	120446	00500	00500	DLGN01027	0025	INSTALL SATCOM SECURE VOICE	113200	113200	18
CGN	25	030	82	120583	01200	01200	DLGN01032	0025	ENCAPSULATED LIFERAFTS	268200	268200	19
CGN	25	030	82	120521	00047	00047	DLGN01021	0025	DEEP FAT FRYER FIRE PROTECTION	11940	11940	20
CGN	25	030	82	120522	00200	00200	DLGN01013	0025	WET SPRINKLER SYS DEF CORR	39480	39480	21
CGN	25	030	82	120551	01000	01000	DLGN01024	0025	HP AIR COMPRESSORS (20CFM)	226400	226400	22
CGN	25	030	82	120593	01000	01000	DLGN01022	0025	BILGE PUMP IMPS	226400	226400	23
CGN	25	030	82	120453	03170	03170	DLGN00262	0025	ASMD PLAN-AN/SPS-49	654120	654120	24
CGN	25	030	82	120711	03660	03660	DLGN00263	0025	ASMD PLAN-CLOSE IN WEAPS SYS	798000	798000	25
CGN	25	030	82	120480	00100	00100	DLGN01058	0025	SPG-55B MODUL REPL	23800	23800	26
CGN	25	030	82	120446	00500	00500	DLGN01060	0025	COMM SEC SYS	113200	113200	27
CGN	25	030	82	120441	01500	01500	DLGN01059	0025	SINGLE AUDIO SYSTEM	330000	330000	28
CGN	25	030	82	120450	02000	02000	DLGN01037	0025	DESIGN TO PRICE EW-III	452800	452800	29
CGN	25	030	82	120593	00172	00172	DLGN01049	0025	EVAP DUMP DISCH DISP	39660	39660	30
CGN	25	030	82	120480	00100	00100	DLGN01057	0025	SPG-55 TRACK SIMULATION	23800	23800	31
CGN	25	030	82	120441	05000	05000	DLGN01065	0025	COMM SYS PACKAGE	1132000	1132000	32
CGN	25	030	82	120446	01000	01000	DLGN01066	0025	UHF SECURE VOICE PLAIN CIPHER	226400	226400	33
CGN	25	030	82	120321	00580	00580	CGN 01019	0025	REPL SHORE POWER SYS	132920	132920	34
CGN	25	030	82	120191	00520	00520	DLGN09051	0025	WT & MOMENT COMPENSATION	156240	156240	35
CGN	25	030	82	120412	02190	02190	DLGN09050	0025	COMPUTER REPROGRAMMING	394200	394200	36
CGN	25	030	82	120446	01000	01000	DLGN01061	0025	UHF/VHF SEC VOICE VINSON	226400	226400	37
CGN	35	000	77	920411	00550	01198	DLGN00128	0035	NTDS-SLD STATE EXT CORE MEM UN	114356	152133	38
CGN	35	000	77	920411	00261	00275	DLGN00218	0035	NTDS REFRESHER MEM	52780	36507	39
CGN	35	000	79	890570	10539	10539	DLGN00277	0035	INSTL OUTBOARD/OUTRIGGER	2071020	2071020	40
CGN	35	000	79	890720	04500	04500	DLGN00118	0035	HARPOON	868000	868000	41
CGN	35	020	81	120473	01000	01000	DLGN00126	0035	ASMD DECOYS SUPER RADC	226400	226400	42
CGN	35	020	81	120711	03231	03231	DLGN00116	0035	ASMD PLAN-CLOSE IN WEAPS SYS	652856	652856	43
CGN	35	020	81	120446	01000	01000	DLGN00134	0035	UHF SECURE VOICE PLAIN CYPHER	226400	226400	44
CGN	35	020	81	120	02000	02000	CGN 00349	0035	MUTE	452800	452800	45
CGN	35	020	81	120123	00250	00250	CGN 00324	0035	MACHINRY SPACE ESCAPE TRUNKS	50800	50800	46
CGN	35	020	81	120440	00412	00412	CGN 00356	0035	IMPROVED CRT/ARO	84160	84160	47
CGN	35	020	81	120453	03000	03000	CGN 00351	0035	SPS-48 ATD	656000	656000	48
CGN	35	020	81	120321	00500	00500	CGN 00281	0035	REPL SHORE POWER SYS	125960	125960	49
CGN	35	020	81	120	00000	00000	DLGNW7110	0035	D/A FOR IMPPOVED TRACK MODULE	1050000	53544	50
CGN	35	020	81	120453	02491	02491	DLGN00110	0035	ASMD PLAN-AUTO DET/TRK SPS 48A	519433	519433	51
CGN	35	020	81	120446	00500	00500	DLGN00107	0035	HF SECURE VOICE-PARKHILL	113200	113200	52
CGN	35	020	81	120451	00000	00000	CGN 00360	0035	INSTL AN/SPS-10 SOLID STATE	0	0	53
CGN	35	020	81	120423	00500	00500	CGN 00359	0035	INSTL AN/URN-20 TACAN MOD	115000	115000	54
CGN	35	020	81	120593	01000	01000	DLGN00286	0035	BILGE PUMP IMPROVEMENT	226400	226400	55
CGN	35	020	81	120	00047	00047	DLGN00284	0035	DEEP FAT FRYER FIRE PROTECTION	11940	11940	56
CGN	35	020	81	120522	00196	00196	DLGN00240	0035	AUTO SPRINK TORP MAG	66795	66795	57
CGN	35	020	81	120555	00250	00250	DLGN00238	0035	LAMPS-AFFF CANNON	56600	56600	58
CGN	35	020	81	120522	00300	00300	DLGN00274	0035	MAG WET SPRINKL DEF CORR	58640	58640	59

Unit 12 - Major Alteration File (MAF)

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CGN     9 SA  217 1 .0000 .0614 .0130 .0000 .0419 .0000 .0000 .0296 .0000 .4881
CGN     9 SA  217 2 .0260 .0209 .0000 .2657 .0188 .0347 .0000 .0000 .0000 .0000
CGN     9 SA  217 3 1.0000 PERA(CD)
CGN     9 SA  238 1 .0000 .6147 .0000 .0000 .2661 .0642 .0000 .0000 .0000 .0000
CGN     9 SA  238 2 .0000 .0092 .0000 .0000 .0367 .0092 .0000 .0000 .0000 .0000
CGN     9 SA  238 3 1.0000 PERA(CD)
CGN     9 SA  288 1 .0000 .1126 .0143 .0000 .0810 .0000 .0000 .0314 .0000 .3928
CGN     9 SA  288 2 .0473 .0439 .0000 .2038 .0257 .0473 .0000 .0000 .0000 .0000
CGN     9 SA  288 3 1.0000 PERA(CD)
CGN     9 SA  298 1 .0000 .1025 .0000 .0000 .0621 .0000 .0000 .0435 .0000 .3820
CGN     9 SA  298 2 .0000 .0217 .0000 .3043 .0186 .0652 .0000 .0000 .0000 .0000
CGN     9 SA  298 3 1.0000 PERA(CD)
CGN     9 SA  322 1 .0000 .6129 .0000 .0000 .1505 .0000 .0000 .0430 .0000 .0968
CGN     9 SA  322 2 .0645 .0000 .0000 .0000 .0323 .0000 .0000 .0000 .0000 .0000
CGN     9 SA  322 3 1.0000 PERA(CD)
CGN     9 SA  384 1 .0000 .1330 .0487 .0000 .1686 .0202 .0000 .1021 .0606 .0000
CGN     9 SA  384 2 .3135 .0107 .0000 .0000 .0499 .0926 .0000 .0000 .0000 .0000
CGN     9 SA  384 3 1.0000 PERA(CD)
CGN    35 SA  128 1 .0000 .0841 .0187 .0000 .0654 .0000 .0000 .1028 .0000 .1495
CGN    35 SA  128 2 .0841 .0467 .0000 .2430 .0374 .1495 .0000 .0000 .0187 .0000
CGN    35 SA  128 3 1.0000 PERA(CD)
CGN    36 SA   23 1 .0000 .0714 .0079 .0000 .0635 .0000 .0000 .0794 .0238 .2619
CGN    36 SA   23 2 .0635 .0397 .0000 .2143 .0556 .1111 .0000 .0000 .0079 .0000
CGN    36 SA   23 3 1.0000 PERA(CD)
CV        SA 3091 1 .0000 .0747 .1224 .0000 .2345 .0232 .0000 .0902 .0000 .0052
CV        SA 3091 2 .4111 .0103 .0000 .0000 .0052 .0168 .0000 .0000 .0064 .0000
CV        SA 3091 3 1.0000
CV        SA 3094 1 .0000 .1345 .0032 .0000 .1321 .0016 .0000 .0198 .0000 .2176
CV        SA 3094 2 .0870 .0166 .0000 .0000 .2223 .1566 .0000 .0000 .0087 .0000
CV        SA 3094 3 1.0000
CV        SA 3203 1 .0000 .1349 .0000 .0000 .1403 .0378 .0000 .0603 .0000 .0809
CV        SA 3203 2 .4667 .0009 .0000 .0000 .0171 .0486 .0000 .0000 .0081 .0045
CV        SA 3203 3 1.0000
CV        SA 3496 1 .0000 .1019 .0157 .0000 .0925 .0188 .0000 .0345 .0000 .1295
CV        SA 3496 2 .4734 .0298 .0000 .0063 .0423 .0486 .0000 .0000 .0078 .0000
CV        SA 3496 3 1.0000
CV        SA 3512 1 .0000 .1849 .0640 .0000 .1841 .0261 .0000 .0047 .0049 .0890
CV        SA 3512 2 .2608 .0455 .0000 .0000 .0322 .0999 .0000 .0000 .0038 .0000
CV        SA 3512 3 1.0000
CV        SA 3556 1 .0000 .0517 .0065 .0000 .1159 .0071 .0000 .0149 .0000 .3080
CV        SA 3556 2 .4334 .0166 .0000 .0000 .0161 .0297 .0000 .0000 .0000 .0000
CV        SA 3556 3 1.0000
CV        SA 3615 1 .0000 .1361 .0050 .0248 .1832 .0198 .0000 .1609 .0000 .2847
CV        SA 3615 2 .0173 .0000 .0248 .0000 .0347 .0000 .0000 .0000 .0000 .1089
CV        SA 3615 3 1.0000
CV        SA 3715 1 .0000 .0423 .2963 .0000 .0988 .0226 .0000 .0085 .0000 .1158
CV        SA 3715 2 .2399 .0509 .0000 .0000 .0558 .0691 .0000 .0000 .0000 .0000
CV        SA 3715 3 1.0000
CV        SA 3735 1 .0000 .0637 .3758 .0000 .1275 .0033 .0000 .0131 .0000 .3268
CV        SA 3735 2 .0000 .0000 .0294 .0000 .0359 .0245 .0000 .0000 .0000 .0000
CV        SA 3735 3 1.0000
CV        SA 3736 1 .0000 .0661 .2761 .0000 .1126 .0045 .0000 .0223 .0000 .1135
CV        SA 3736 2 .2699 .0295 .0000 .0000 .0840 .0214 .0000 .0000 .0000 .0000
CV        SA 3736 3 1.0000
CV        SA 3774 1 .0000 .1900 .0291 .0022 .2524 .0330 .0000 .1282 .0003 .0663
CV        SA 3774 2 .1232 .0000 .0417 .0005 .0372 .0638 .0002 .0005 .0000 .0315
CV        SA 3774 3 1.0000
CV        SA 3800 1 .0000 .2099 .0025 .0000 .2912 .0084 .0000 .0303 .0000 .0818
CV        SA 3800 2 .2314 .0021 .0000 .0000 .0295 .1054 .0000 .0000 .0013 .0063
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CGN     9 SA   217 1 .0000 .0614 .0130 .0000 .0419 .0000 .0000 .0296 .0000 .4881
CGN     9 SA   217 2 .0260 .0209 .0000 .2657 .0188 .0347 .0000 .0000 .0000 .0000
CGN     9 SA   217 3 1.0000 PERA(CD)
CGN     9 SA   238 1 .0000 .6147 .0000 .0000 .2661 .0642 .0000 .0000 .0000 .0000
CGN     9 SA   238 2 .0000 .0092 .0000 .0000 .0367 .0092 .0000 .0000 .0000 .0000
CGN     9 SA   238 3 1.0000 PERA(CD)
CGN     9 SA   288 1 .0000 .1126 .0143 .0000 .0810 .0000 .0000 .0314 .0000 .3928
CGN     9 SA   288 2 .0473 .0439 .0000 .2038 .0257 .0473 .0000 .0000 .0000 .0000
CGN     9 SA   288 3 1.0000 PERA(CD)
CGN     9 SA   298 1 .0000 .1025 .0000 .0000 .0621 .0000 .0000 .0435 .0000 .3820
CGN     9 SA   298 2 .0000 .0217 .0000 .3043 .0186 .0652 .0000 .0000 .0000 .0000
CGN     9 SA   298 3 1.0000 PERA(CD)
CGN     9 SA   322 1 .0000 .6129 .0000 .0000 .1505 .0000 .0000 .0430 .0000 .0968
CGN     9 SA   322 2 .0645 .0000 .0000 .0000 .0323 .0000 .0000 .0000 .0000 .0000
CGN     9 SA   322 3 1.0000 PERA(CD)
CGN     9 SA   384 1 .0000 .1330 .0487 .0000 .1686 .0202 .0000 .1021 .0606 .0000
CGN     9 SA   384 2 .3135 .0107 .0000 .0000 .0499 .0926 .0000 .0000 .0000 .0000
CGN     9 SA   384 3 1.0000 PERA(CD)
CGN    35 SA   128 1 .0000 .0841 .0187 .0000 .0654 .0000 .0000 .1028 .0000 .1495
CGN    35 SA   128 2 .0841 .0467 .0000 .2430 .0374 .1495 .0000 .0000 .0187 .0000
CGN    35 SA   128 3 1.0000 PERA(CD)
CGN    36 SA    23 1 .0000 .0714 .0079 .0000 .0635 .0000 .0000 .0794 .0238 .2619
CGN    36 SA    23 2 .0635 .0397 .0000 .2143 .0556 .1111 .0000 .0000 .0079 .0000
CGN    36 SA    23 3 1.0000 PERA(CD)
CV        SA  3091 1 .0000 .0747 .1224 .0000 .2345 .0232 .0000 .0902 .0000 .0052
CV        SA  3091 2 .4111 .0103 .0000 .0000 .0052 .0168 .0000 .0000 .0064 .0000
CV        SA  3091 3 1.0000
CV        SA  3094 1 .0000 .1345 .0032 .0000 .1321 .0016 .0000 .0198 .0000 .2176
CV        SA  3094 2 .0870 .0166 .0000 .0000 .2223 .1566 .0000 .0000 .0087 .0000
CV        SA  3094 3 1.0000
CV        SA  3203 1 .0000 .1349 .0000 .0000 .1403 .0378 .0000 .0603 .0000 .0809
CV        SA  3203 2 .4667 .0009 .0000 .0000 .0171 .0486 .0000 .0000 .0081 .0045
CV        SA  3203 3 1.0000
CV        SA  3496 1 .0000 .1019 .0157 .0000 .0925 .0188 .0000 .0345 .0000 .1245
CV        SA  3496 2 .4734 .0298 .0000 .0063 .0423 .0486 .0000 .0000 .0078 .0000
CV        SA  3496 3 1.0000
CV        SA  3512 1 .0000 .1849 .0640 .0000 .1841 .0261 .0000 .0047 .0049 .0890
CV        SA  3512 2 .2608 .0455 .0000 .0000 .0322 .0999 .0000 .0000 .0038 .0000
CV        SA  3512 3 1.0000
CV        SA  3556 1 .0000 .0517 .0065 .0000 .1159 .0071 .0000 .0149 .0000 .3080
CV        SA  3556 2 .4334 .0166 .0000 .0000 .0161 .0297 .0000 .0000 .0000 .0000
CV        SA  3556 3 1.0000
CV        SA  3605 1 .0000 .1361 .0050 .0248 .1832 .0198 .0000 .1609 .0000 .2847
CV        SA  3605 2 .0173 .0000 .0248 .0000 .0347 .0000 .0000 .0000 .0000 .1089
CV        SA  3605 3 1.0000
CV        SA  3715 1 .0000 .0423 .2963 .0000 .0988 .0226 .0000 .0085 .0000 .1158
CV        SA  3715 2 .2399 .0509 .0000 .0000 .0558 .0691 .0000 .0000 .0000 .0000
CV        SA  3715 3 1.0000
CV        SA  3735 1 .0000 .0637 .3758 .0000 .1275 .0033 .0000 .0131 .0000 .3268
CV        SA  3735 2 .0000 .0000 .0294 .0000 .0359 .0245 .0000 .0000 .0000 .0000
CV        SA  3735 3 1.0000
CV        SA  3736 1 .0000 .0661 .2761 .0000 .1126 .0045 .0000 .0223 .0000 .1135
CV        SA  3736 2 .2699 .0295 .0000 .0000 .0840 .0214 .0000 .0000 .0000 .0000
CV        SA  3736 3 1.0000
CV        SA  3774 1 .0000 .1900 .0291 .0022 .2524 .0330 .0000 .1282 .0003 .0663
CV        SA  3774 2 .1232 .0000 .0417 .0005 .0372 .0638 .0002 .0005 .0000 .0315
CV        SA  3774 3 1.0000
CV        SA  3800 1 .0000 .2099 .0025 .0000 .2912 .0084 .0000 .0303 .0000 .0818
CV        SA  3800 2 .2314 .0021 .0000 .0000 .0295 .1054 .0000 .0000 .0013 .0063
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Unit 1 -

AVAILABILITIES ONLY IN DMAF

TYPE	HULL	SEQ.NO.	FY
CGN	9	30	79
CGN	9	30	80
CGN	9	30	80
CGN	9	30	81
CGN	9	30	81
CGN	9	30	82
CGN	9	30	82
CGN	35	11	79
CGN	40	4	82
CV	43	41	80
CV	59	43	82

Unit 10 -

PROPORTION OF ALTS WITH MAN DAYS < 750

TYPE	PROPORTION
CGN	.484
CV	.538

Unit 2 -

ILLEGAL SWBS

SWBS	TYPE	HULL	SEQ.NO.	ALT.NO.	FY	
0	CGN	25	30	01076	82	MUTE
0	CGN	35	20	00349	81	MUTE
0	CGN	35	20	W7110	81	O/A FOR IMPROVED TRACK MODULE
0	CGN	35	20	00284	81	DEEP FAT FRYER FIRE PROTECTION
0	CGN	36	10	00113	80	MUTE
0	CGN	37	10	00113	81	MUTE
0	CGN	38	10	00083	82	INSTL MUTE
0	CV	42	35	W0091	76	MK 28 RLS FRNG SW GRD
20	CV	43	40	03611	78	INSTL NAVAL TACTICAL DATA SYS
0	CV	59	33	W1320	76	BPDSMS BASELINE 4
0	CV	59	33	W0091	76	MK 28 RLS FRNG SW GRD
0	CV	59	33	W0019	76	BPDSMS BASELINE 5
0	CV	59	40	04748	77	EA6B DTS VANS
0	CV	59	40	04593	77	CV AIR WING PERS LIFE SUPPORT
60	CV	59	40	03931	77	INSTALL CV-TSC
0	CV	60	51	W0019	76	BPDSMS BASELINE 5
0	CV	60	51	W1310	76	BPDSMS BASELINE 3
0	CV	60	51	W0091	76	MK 28 RLS FRNG SW GRD
0	CV	60	51	04593	76	CV AIR WING PERS LIFE SUPPORT
0	CV	60	51	04748	76	EA6B DTS VANS
0	CV	60	52	W0092	77	MK 28 RLS R&M IMP
0	CV	60	52	W1320	77	BPDSMS BASELINE 4
0	CV	60	52	W1265	77	MK 28 CHAFF SYS IMPROVEMENTS
0	CV	60	52	W0061	77	BPDSMS BASELINE 6
0	CV	60	60	W0050	79	ASMD-ORDALTS FOR CIWS INSTALL
0	CV	61	50	04593	77	CV AIR WING PERS LIFE SUPPORT
60	CV	61	50	03931	77	INSTALL CV-TSC
0	CV	61	50	04504	77	NTDS-ASMD MODS
0	CV	61	51	04770	80	HCT-10
0	CV	62	33	W1265	76	MK 28 CHAFF SYS IMPROVEMENTS
0	CV	62	33	W1265	76	MK 28 CHAFF SYS IMPROVEMENTS
0	CV	62	33	W0091	76	MK 28 RLS FRNG SW GRD
0	CV	62	33	W1265	76	MK 28 CHAFF SYS IMPROVEMENTS
0	CV	62	33	W0019	76	BPDSMS BASELINE 5
0	CV	62	33	04748	76	EA6B DTS VANS
60	CV	62	33	03931	76	INSTALL CV-TSC
0	CV	62	41	05340	79	MUTE

Unit 8 -

NEW ALTS

ALT.NO.	TYPE	HULL	SEQ.NO.	FY	ALT. BRIEF
00233	CGN	25	24	79	HARPOON
00234	CGN	25	30	82	HF SECURE VOICE PARKHILL
01076	CGN	25	30	82	MUTE
00226	CGN	25	30	82	ASMD ADT FOR SPA 48A
01062	CGN	25	30	82	NAVY GROWTH RADIO
00273	CGN	25	30	82	NAVMACS A PLUS
00270	CGN	25	30	82	ASMD DECOYS SUPER RBOC MK36 0
00268	CGN	25	30	82	ASMD PLAN-SM-2 CAPABILITY
00266	CGN	25	30	82	ASMD PLAN-INSTL IRST SET
01032	CGN	25	30	82	ENCAPSULATED LIFERAFTS
01024	CGN	25	30	82	HP AIP COMPRESSORS (20CFH)
01022	CGN	25	30	82	BILGE PUMP IMPS
00262	CGN	25	30	82	ASMD PLAN-AN/SPS-49
00263	CGN	25	30	82	ASMD PLAN-CLOSE IN WEAPS SYS
01059	CGN	25	30	82	SINGLE AUDIC SYSTEM
01037	CGN	25	30	82	DESIGN TO PRICE EW-III
01065	CGN	25	30	82	COMM SYS PACKAGE
01066	CGN	25	30	82	UHF SECURE VOICE PLAIN CIPHER
09050	CGN	25	30	82	COMPUTER REPROGRAMMING
01061	CGN	25	30	82	UHF/VHF SEC VOICE VINSON
00126	CGN	35	20	81	ASMD DECOYS SUPER RBOC
00116	CGN	35	20	81	ASMD PLAN-CLOSE IN WEAPS SYS
00134	CGN	35	20	81	UHF SECURE VOICE PLAIN CYPHER
00349	CGN	35	20	81	MUTE
00351	CGN	35	20	81	SPS-40 ATD
00110	CGN	35	20	81	ASMD PLAN-AUTO DET/TRK SPS 48A
00286	CGN	35	20	81	BILGE PUMP IMPROVEMENT
00270	CGN	35	20	81	INSTL MULTI WSC-3 SAT COMM (4)
00150	CGN	35	20	81	SSB-LF/MF REPL AN/URC 32
00184	CGN	35	20	81	ASMD PLAN-TRK MOD
00164	CGN	35	20	81	COMM SYSTS PACKAGE
00216	CGN	35	20	81	ASMD PLAN-SM-2 CAPABILITY
00215	CGN	35	20	81	NAVMACS "A" PLUS
00291	CGN	35	20	81	HP AIR COMPRESSORS (20CFH)
00326	CGN	35	20	81	DESIGN TO PRICE EW (III)
00300	CGN	35	20	81	ENCAPSULATED LIFE RAFTS
00334	CGN	35	20	81	SINGLE AUDIO SYSTEM
09050	CGN	35	20	81	COMPUTER REPROGRAMMING
00337	CGN	35	20	81	NAVY GROWTH RADIO

Unit 9 -

SAMIS/OMAF RATIO

TYPE	HULL	SEQ.NO.	FY	RATIO	SAMIS MANDAYS	OMAF MANDAYS
CGN	25	24	79	.75	4500.	6000.
CGN	25	30	82	1.16	48484.	41791.
CGN	35	28	81	1.31	54600.	41791.
CGN	36	4	79	.93	10539.	11329.
CGN	36	10	80	1.33	51961.	38997.
CGN	37	4	77	.14	1142.	7956.
CGN	37	10	81	1.35	52461.	38920.
CGN	38	4	79	1.30	5000.	3840.
CGN	38	10	82	----	2000.	OMAF PER CENT ALT = 0
CGN	39	4	79	1.17	14000.	12000.
CV	41	35	78	1.10	21628.	19600.
CV	41	36	79	1.12	21551.	19200.
CV	41	40	81	1.13	94302.	83169.
CV	43	40	78	1.14	66459.	58151.
CV	59	41	79	1.02	29199.	28571.
CV	59	42	80	1.19	30595.	25800.
CV	60	53	78	1.03	36980.	35744.
CV	60	60	79	1.32	149146.	112800.
CV	60	61	81	1.15	28922.	25200.
CV	61	50	77	.88	148401.	168454.
CV	61	51	80	1.13	28510.	25200.
CV	61	52	81	1.35	37186.	27600.
CV	62	40	78	1.08	152958.	142004.
CV	62	41	79	1.19	34613.	29051.
CV	62	42	81	1.13	27807.	24600.
CV	62	43	82	1.10	26999.	24600.

PROPORTION OF AVAILABILITIES OUTSIDE RANGE 0.9--1.35 = .120
PROPORTION OF AVAILABILITIES WHERE SAMIS > OMAF OUTSIDE RANGE 0.9--1.35 = 0.000

Unit 11 -

UNSEQUENCED ALTS

FY	TOT. MAN DAYS FMP	TOT. MAN DAYS AMT	LARGE UNSEQUENCED ALTS (FMP--AMT)																	
77	1855	1213	CGN	35	1198--	550														
78	10539	10539	CGN	37	10539--	10539														
79	15039	15039	CGN	35	10539--	10539	CGN	35	4500--	4500										
80	18035	15600	CGN	40	9000--	9000	CGN	40	5000--	5000	CV	41	350--	1600						
81	33535	5250	CV	59	834--	0	CV	59	1000--	0	CV	59	7250--	0	CV	59	6520--	0		
			CV	59	1055--	0	CV	59	4000--	0	CV	59	930--	0	CV	59	1030--	1600		
			CV	59	1700--	1700	CV	59	1700--	1700	CV	59	1000--	0	CV	59	1215--	0		

Unit 13 -

AVAILABILITIES ONLY IN SAMIS

TYPE	HULL	SEQ.NO.	FY
CGN	25	23	77
CV	41	33	76
CV	41	34	77
CV	42	35	76
CV	43	33	76
CV	59	33	76
CV	59	40	77
CV	59	50	82
CV	60	51	76
CV	60	52	77
CV	61	60	82
CV	62	33	76

Unit 16 -

MANDAYS FOR AVAILABILITIES ONLY IN SAMIS

CGN	25	23	77	795.
CV	41	33	76	20403.
CV	41	34	77	20427.
CV	42	35	76	5562.
CV	43	33	76	32481.
CV	59	33	76	23061.
CV	59	40	77	113034.
CV	59	50	82	166238.
CV	60	51	76	11655.
CV	60	52	77	21815.
CV	61	60	82	115534.
CV	62	33	76	30413.

Unit 14 -

AVAILABILITIES WITH MORE THAN 25 0/0 ZERO-MANDAY ALTS

TYPE	HULL	SEQ.NO.	FY	PROPORTION OF ZERO MAN DAY ALTS
CV	60	51	76	.333

Unit 15 -

INDIVIDUAL ZERO-MANDAY ALTS

ALT.NO.	TYPE	HULL	SEQ.NO.	FY	ALT. BRIEF
01089	CGN	25	30	82	INSTL AN/SPS-10 SOLID STATE
W7110	CGN	35	20	81	O/A FOR IMPROVED TRACK MODULE
00360	CGN	35	20	81	INSTL AN/SPS-10 SOLID STATE
00125	CGN	37	10	81	INSTL AN/SPS-10 SOLID STATE
09050	CV	41	34	77	COMPUTER PROGRAMMING
W0091	CV	42	35	76	MK 28 RLS FRNG SW GRD
04784	CV	43	33	76	INSTALL AN/WLR-11 IFM RCVR SYS
04250	CV	43	33	76	AN/SRR-1 RECEIVING SET INSTL
09050	CV	59	33	76	COMPUTER PROGRAMMING
04250	CV	59	33	76	AN/SRR-1 RECEIVING SET INSTL
W0091	CV	59	33	76	MK 28 RLS FRNG SW GRD
W0019	CV	59	33	76	BPDSMS BASELINE 5
04784	CV	60	51	76	INSTALL AN/WLR-11 IFM RCVR SYS
W0019	CV	60	51	76	BPDSMS BASELINE 5
W1310	CV	60	51	76	BPDSMS BASELINE 3
W0091	CV	60	51	76	MK 28 RLS FRNG SW GRD
W0092	CV	60	52	77	MK 28 RLS R&M IMP
W0061	CV	60	52	77	BPDSMS BASELINE 6
W0050	CV	60	60	79	ASMD-ORDALTS FOR CIWS INSTALL
09050	CV	60	61	81	COMPUTER PROGRAMMING
05253	CV	61	50	77	DUAL CH. CAP. FOR LINK UA
05302	CV	62	33	76	ANT REPL RELOC
09050	CV	62	33	76	COMPUTER PROGRAMMING
W0091	CV	62	33	76	MK 28 RLS FRNG SW GRD
W0019	CV	62	33	76	BPDSMS BASELINE 5
09050	CV	62	41	79	COMPUTER PROGRAMMING
09050	CV	62	43	82	COMPUTER PROGRAMMING

3.2 PROGRAM FIXSAM

3.2.1 DESCRIPTION

Program FIXSAM is a routine for making corrections to the Ship Alterations Management Information System (SAMIS) file. It assumes that the SAMIS file has been created with sequential record numbers. Individual data items on a single record or on a series of records may be changed. Replacement values are input from cards which contain the data item or items to be changed and the corresponding record numbers. If the same value is to be changed in a series of records, the first and last record numbers of the sequence are input. This version of FIXSAM does not allow changes in the alterations brief, AMT dollar expenditures, or FMP dollar expenditures.

The input card is a card image of a SAMIS record. Since it has the same format, values to be changed are punched in the columns corresponding to positions on the record. The record numbers (IREC1 and IREC2) are the last two items on the card. If a single record is to be altered, the variable, IREC2, is omitted.

If a sequence of record numbers is illogical, an error message is written and those corrections are omitted. When the program is unable to find a record number, the remaining records are copied.

Any record that is altered is printed out. The original record is identified by a "D" for deleted and the revised record has an "I" indicating an insertion. The last record number encountered is also given. This summary sheet allows the data to be checked to ensure that corrections have been entered properly.

The updated file is written on a file called "SAMIS Backup." The output of the updating should be reviewed carefully before the SAMIS Backup file is copied to the original file.

3.2.2 RUN SET-UP

The following set-up is used to run the FIXSAM program on the IBM 360/370 computer:

```
//NVSFXSAM JOB (XXXXXXXXXX,XXXXX),USER,CLASS=D,TIME=(2,0),MSGLEVEL=1
//JOBLIB DD DSN=NVS01.DEPOT.LIB,DISP=SHR
// EXEC PGM=FIXSAM
//GO.FT05F001 DD *        INPUT CARDS FOLLOW
```

FIXSAM card inputs (unit 5)

```
//GO.FT06F001 DD SYSOUT=A
//GO.FT08F001 DD DSN=NVS01.SAMIS.DATA,DISP=SHR                    (INPUT FILE)
//GO.FT09F001 DD DSN=NVS01.SAMIS.BACKUP.DATA,DISP=SHR    (CORRECTED SAMIS)
```

```
//NVSCOPY  JOB (XXXXXXXXXX,XXXXX),USER,CLASS=C,TIME=(,15),MSGLEVEL=1
//JOBLIB DD DSN=NVS01.DEPOT.LIB,DISP=SHR
// EXEC PGM=IEBGENER                                  (COPY SAMIS FROM BACKUP)
//SYSIN DD DUMMY
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=NVS01.SAMIS.BACKUP.DATA,DISP=SHR
//SYSUT2 DD DSN=NVS01.SAMIS.DATA,DISP=SHR
```

3.2.3 INPUT

Card inputs to FIXSAM are made on unit 5. The format for these cards is given in Section 3.2.3.1.

Unit 5 - Card inputs which give replacement values and identify the record number.

The following additional unit is used to input information from a disk file:

Unit 8 - Ship Alterations Management Information System (SAMIS)

The format for this file is given in Section 3.2.3.2.

3.2.3.1 Unit 5 - Card Input

The format for each input card is as follows:

Variable Name	Description	Field	Format
UFIELD(1)	Ship type	1-4	A4
UFIELD(2)	Hull number	5-8	A4
UFIELD(3)	Sequence number	9-12	A4
UFIELD(4)	Fiscal year	13-15	A3
UFIELD(5)	Type work	17-19	A3
UFIELD(6)	SWBS number	20-22	A3
UFIELD(7-8)	AMT mandays	27-31	A1,A4
UFIELD(9-10)	FMP mandays	33-37	A1,A4
UFIELD(11)	SAMIS type	41-44	A4
UFIELD(12-13)	Alteration identification number	45-49	A1,A4
UFIELD(14)	SAMIS class	53-56	A4
IREC1	Record number to be changed	66-71	I6
IREC2	Last record number of a sequence to be changed. (If an individual record is altered IREC2 is blank.)	75-80	I6

3.2.3.2 Unit 8 - Ship Alterations Management Information System (SAMIS)

The formats for the records on the SAMIS file are as follows:

Variable Name	Description	Field	Format
DFIELD(1)	Ship type	1-4	A4
DFIELD(2)	Hull number	5-8	A4
DFIELD(3)	Sequence number	9-12	A4
DFIELD(4)	Fiscal year	13-15	A3
DFIELD(5)	Type work	17-19	A3
DFIELD(6)	SWBS number	20-22	A3
DFIELD(7-8)	AMT mandays	27-31	A1,A4
DFIELD(9-10)	FMP mandays	33-37	A1,A4
DFIELD(11)	SAMIS type	41-44	A4
DFIELD(12-13)	Alteration identification number	45-49	A1,A4
DFIELD(14)	SAMIS class	53-56	A4
DFIELD(15-22)	Alteration brief	58-87	7A4,A2
DFIELD(23)	AMT dollars	89-97	I9
DFIELD(24)	FMT dollars	99-105	I7
IREC	Record number	108-113	I6

3.2.4 OUTPUT

The following unit is used by the program FIXSAM for generating hard-copy output:

Unit 6 - Error messages and printout of replacement records

Section 3.2.7 shows a sample of these outputs.

The following additional unit is used by FIXSAM to store the revised SAMIS on disk.

Unit 9 - The Revised Ship Alterations Management Information System (SAMIS)

The format for this file is the same as that of the SAMIS input file. The format for this file is given in Section 3.2.3.2.

3.2.5 PROGRAM LISTING

```
C*****PROGRAM FIXSAM(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT,TAPE8,TAPE9) ****  10
C                                                                       FIXS  20
C        THE PURPOSE OF THE PROGRAM FIXSAM IS TO MAKE CORRECTIONS       FIXS  30
C          TO THE SAMIS FILE                                            FIXS  40
C        INDIVIDUAL DATA ITEMS ON A SINGLE RECORD                       FIXS  50
C          OR A SERIES OF RECORDS MAY BE CHANGED                        FIXS  60
C        REPLACEMENT VALUES ARE INPUT FROM CARDS                        FIXS  70
C        THE CARD CONTAINS THE DATA ITEM OR ITEMS TO BE CHANGED         FIXS  80
C          AND ITS CORRESPONDING RECORD NUMBER                          FIXS  90
C        IF THE SAME VALUE IS TO BE CHANGED IN A SERIES OF RECORDS,     FIXS 100
C          THE 1ST AND LAST RECORD NUMBER OF THE SEQUENCE ARE INPUT      FIXS 110
C                                                                       FIXS 120
C          ------------------------------------------------             FIXS 125
C          UNIT ASSIGNMENTS                                             FIXS 130
C            TAPE5 - INPUT  - CARDS                                     FIXS 140
C            TAPE6 - OUTPUT - ERROR MESSAGES AND PRINTOUT OF            FIXS 150
C                     ALTERED RECORDS                                   FIXS 160
C            TAPE8 - INPUT  - OLD SAMIS                                 FIXS 170
C            TAPE9 - OUTPUT - UPDATED SAMIS                             FIXS 180
C          ------------------------------------------------             FIXS 185
C                                                                       FIXS 190
C        UPDATE DECK TERMINATES WITH A 9999 CARD                        FIXS 200
C                                                                       FIXS 210
C        PROGRAMMER - JEAN ST LAURENT - DTNSRDC (CODE 1863)             FIXS 220
C        WRITTEN AUGUST 1976                                            FIXS 230
C                                                                       FIXS 240
      DIMENSION UFIELD(14), DFIELD(24)                                  FIXS 250
      DATA END/4H9999/, BLANK/1H /                                      FIXS 260
C                                                                       FIXS 270
C           INITIAL CONDITIONS                                          FIXS 280
      DO 5 I = 1,14                                                     FIXS 290
      UFIELD(I) = 0.0                                                   FIXS 300
    5 CONTINUE                                                          FIXS 310
      DO 10 I = 1,24                                                    FIXS 320
      DFIELD(I) = 0.0                                                   FIXS 330
   10 CONTINUE                                                          FIXS 340
      IRECP = 0                                                         FIXS 345
C                                                                       FIXS 350
C        READ UPDATE INFORMATION                                        FIXS 360
   15 READ(5,100) (UFIELD(I),I=1,14), IREC1, IREC2                      FIXS 370
  100 FORMAT(3A4, A3, 1X, 2A3, 4X, A1,A4,1X,A1,A4,3X,A4, A1, A4,3X,A4,  FIXS 380
     1  9X, I6, 3X, I6)                                                FIXS 390
C                                                                       FIXS 400
C        CHECK FOR LAST INPUT CARD                                      FIXS 410
      IF(UFIELD(1).EQ.END) GO TO 50                                     FIXS 420
C                                                                       FIXS 430
C        READ OLD SAMIS                                                 FIXS 440
C**20 READ(8,101) (DFIELD(I),I=1,24), IREC                              **** 450
  101 FORMAT(3A4, A3, 1X, 2A3, 4X, A1,A4,1X,A1,A4,3X,A4, A1, A4,3X,A4,  FIXS 460
     1  1X, 7A4, A2, 1X, I9, 1X, I7, 2X, I6)                           FIXS 470
C*****IF(EOF(8) .NE. 0) GO TO 60                                        **** 480
   20 READ(8,101,END=60) (DFIELD(I),I=1,24), IREC                       **** 490
      IRECP = IREC                                                      FIXS 455
C                                                                       FIXS 500
C        CALCULATE NUMBER OF RECORDS IN A SERIES                        FIXS 510
```

```
      NREC = (IREC2 - IREC1) + 1                                        FIXS 520
      IF(IREC2.EQ.0) NREC = 1                                           FIXS 530
      IF(NREC.LE.0) GO TO 45                                            FIXS 540
      IF(IREC - IREC1) 40,25,55                                         FIXS 550
   25 DO 35 J = 1,NREC                                                  FIXS 560
      WRITE(6,102) (DFIELD(I),I=1,24), IREC                             FIXS 570
  102 FORMAT(1X,3A4,A3,1X,2A3, 4X, A1,A4,1X,A1,A4,3X,A4, A1, A4,3X,A4,  FIXS 580
     1  1X, 7A4, A2, 1X, I9, 1X, I7, 2X, I6, 4X, 1HD )                  FIXS 590
      DO 30 I = 1,14                                                    FIXS 600
      IF(UFIELD(I) .EQ. BLANK) GO TO 30                                 FIXS 610
      DFIELD(I) = UFIELD(I)                                             FIXS 620
   30 CONTINUE                                                          FIXS 630
      WRITE(6,103) (DFIELD(I),I=1,24), IREC                             FIXS 640
  103 FORMAT(1X,3A4,A3,1X,2A3, 4X, A1,A4,1X,A1,A4,3X,A4, A1, A4,3X,A4,  FIXS 650
     1  1X, 7A4, A2, 1X, I9, 1X, I7, 2X, I6, 2X, 1HI )                  FIXS 660
      WRITE(9,101) (DFIELD(I),I=1,24), IREC                             FIXS 670
      IF(J.EQ.NREC) GO TO 15                                            FIXS 680
C*****READ(8,101) (DFIELD(I),I=1,24), IREC                              **** 690
C*****IF(EOF(8).NE.0) GO TO 60                                          **** 700
      READ(8,101,END=60) (DFIELD(I),I=1,24), IREC                       **** 710
      IRECP = IREC                                                      FIXS 715
   35 CONTINUE                                                          FIXS 720
      GO TO 15                                                          FIXS 730
C                                                                       FIXS 740
C        COPY OLD SAMIS TO NEW FILE UNCHANGED                           FIXS 750
   40 WRITE(9,101) (DFIELD(I),I=1,24), IREC                             FIXS 760
      GO TO 20                                                          FIXS 770
C                                                                       FIXS 780
C        ERROR PRINTOUTS                                                FIXS 790
   45 WRITE(6,104) IREC1, IREC2                                         FIXS 800
  104 FORMAT(1H , 18H * * * RECORD NO. , I6, 15H OR RECORD NO. , I6,    FIXS 810
     1  9H IN ERROR )                                                   FIXS 820
      WRITE(9,101) (DFIELD(I),I=1,24), IREC                             FIXS 830
      GO TO 15                                                          FIXS 840
C                                                                       FIXS 850
C        LAST CARD OF UPDATE DECK - REMAINING RECORDS ARE COPIED        FIXS 860
C**50 READ(8,101) (DFIELD(I),I=1,24), IREC                              **** 870
C*****IF(EOF(8).NE.0) GO TO 60                                          **** 880
   50 READ(8,101,END=60) (DFIELD(I),I=1,24), IREC                       **** 890
      IRECP = IREC                                                      FIXS 895
      WRITE(9,101) (DFIELD(I),I=1,24), IREC                             FIXS 900
      GO TO 50                                                          FIXS 910
C                                                                       FIXS 920
C        ERROR PATHS                                                    FIXS 930
   55 WRITE(6,105) IREC1                                                FIXS 940
  105 FORMAT(8H RECORD , I6, 12H NOT IN FILE )                          FIXS 950
      GO TO 50                                                          FIXS 955
   60 WRITE(6,106) IRECP                                                FIXS 960
  106 FORMAT(1H , 22HLAST RECORD NUMBER IS , I6)                        FIXS 970
      STOP                                                              FIXS 980
      END                                                               FIXS 970
```

3.2.6 GLOSSARY

LOCAL VARIABLES

Main Program

BLANK	One-character blank space.
DFIELD(24)	Array of data for one SAMIS record.
END	Variable containing the characters "9999".
I	DO-loop index.
IREC	Record number read from SAMIS file.
IRECP	Record number of present record.
IREC1	Record number input with replacement data, indicating record to be replaced.
IREC2	Additional record number, input with replacement data, indicating last record of a series to be altered.
J	DO-loop index.
NREC	Number of sequential records to be updated.
UFIELD(14)	Array of update data.

3.2.7 SAMPLE RUN

Program MATCH noted that there were availabilities on the Ship Alterations Management Information System (SAMIS) file with missing sequence numbers. The card inputs (unit 5) to program FIXSAM request that the sequence numbers (data item 3) be replaced with the correct values. For example, the sequence number is to be changed from "0" to "11" on record numbers 40 through 41.

The Replacement Record Summary (unit 6) shows a pair of records for each replacement. The deleted record is denoted by the letter "D" and the record that was inserted is identified by the letter "I". The summary page is an aid to ensure the accuracy of all changes and should be reviewed before the corrected SAMIS file is copied. The statement "LAST RECORD is 917" tells the user the number of records written. If for any reason, such as computer failure, the entire file is not read, the program FIXSAM must be rerun.

A sample of the SAMIS file (unit 9) is given. It shows that the value of "11" has replaced the "0" on records 40 and 41.

Unit 5 - Card Inputs

```
                11
                 4
                 4
                43
9999
```

```
40      41
126
165     166
456     485
```

Unit 9 - The Revised Ship Alterations Management Information System (SAMIS)

CGN	25	023	77	070411	00520	00520	DLGN00238	0025	NTDS-EXTEND CORE MEM UNIT	114480	79330	1
CGN	25	023	77	070411	00275	00275	DLGN00269	0025	NTDS REFRESHER MEMORY	54720	36507	2
CGN	25	024	79	925720	04500	04500	DLGN00233	0025	HARPOON	856400	856400	3
CGN	25	030	82	120436	00100	00100	DLGN00237	0025	INSTL T/T HIGH TEMP ALARM	20320	20320	4
CGN	25	030	82	120446	01000	01000	DLGN00234	0025	HF SECURE VOICE PARKHILL	226400	226400	5
CGN	25	030	82	120440	00412	00412	CGN 01084	0025	IMPROVE CRT/ARO	84160	84160	6
CGN	25	030	82	120	02000	02000	CGN 01076	0025	MUTE	452800	452800	7
CGN	25	030	82	120423	00500	00500	CGN 01088	0025	INSTL AN/URN () TACAN	115000	115000	8
CGN	25	030	82	120165	02300	02300	DLGN00226	0025	ASMD ADT FOR SPA 48A	501000	501000	9
CGN	25	030	82	120633	00600	00600	DLGN00219	0025	IMPRESSED CURRENT CATH MOD	108000	108000	10
CGN	25	030	82	120451	00000	00000	CGN 01089	0025	INSTL AN/SPS-10 SOLID STATE	0	0	11
CGN	25	030	82	120446	00500	00500	DLGN01063	0025	INSTL KW 46	113200	113200	12
CGN	25	030	82	120441	03000	03000	DLGN01062	0025	NAVY GROWTH RADIO	702400	702400	13
CGN	25	030	82	120441	01164	01164	DLGN00273	0025	NAVMACS A PLUS	230400	230400	14
CGN	25	030	82	120473	01000	01000	DLGN00270	0025	ASMD DECOYS SUPER R30C MK36 0	226400	226400	15
CGN	25	030	82	120410	09049	09049	DLGN00268	0025	ASMD PLAN-SM-2 CAPABILITY	1878820	1878820	16
CGN	25	030	82	120412	01500	01500	DLGN00266	0025	ASMD PLAN-INSTL IRST SET	339600	339600	17
CGN	25	030	82	120446	00500	00500	DLGN01027	0025	INSTALL SATCOM SECURE VOICE	113200	113200	18
CGN	25	030	82	120583	01200	01200	DLGN01032	0025	ENCAPSULATED LIFERAFTS	268200	268200	19
CGN	25	030	82	120521	00047	00047	DLGN01021	0025	DEEP FAT FRYER FIRE PROTECTION	11940	11940	20
CGN	25	030	82	120522	00200	00200	DLGN01013	0025	WET SPRINKLER SYS DEF CORR	39480	39480	21
CGN	25	030	82	120551	01000	01000	DLGN01024	0025	HP AIR COMPRESSORS (20CFM)	226400	226400	22
CGN	25	030	82	120593	01000	01000	DLGN01022	0025	BILGE PUMP IMPS	226400	226400	23
CGN	25	030	82	120453	03170	03170	DLGN00262	0025	ASMD PLAN-AN/SPS-49	654120	654120	24
CGN	25	030	82	120711	03660	03660	DLGN00263	0025	ASMD PLAN-CLOSE IN WEAPS SYS	798000	798000	25
CGN	25	030	82	120480	00100	00100	DLGN01058	0025	SPG-55B MODUL REPL	23800	23800	26
CGN	25	030	82	120446	00500	00500	DLGN01060	0025	COMM SEC SYS	113200	113200	27
CGN	25	030	82	120441	01500	01500	DLGN01059	0025	SINGLE AUDIO SYSTEM	330000	330000	28
CGN	25	030	82	120450	02000	02000	DLGN01037	0025	DESIGN TO PRICE EW-III	452800	452800	29
CGN	25	030	82	120593	00172	00172	DLGN01049	0025	EVAP DUMP DISCH DISP	39660	39660	30
CGN	25	030	82	120480	00100	00100	DLGN01057	0025	SPG-55 TRACK SIMULATION	23800	23800	31
CGN	25	030	82	120441	05000	05000	DLGN01065	0025	COMM SYS PACKAGE	1132000	1132000	32
CGN	25	030	82	120446	01000	01000	DLGN01066	0025	UHF SECURE VOICE PLAIN CIPHER	226400	226400	33
CGN	25	030	82	120321	00500	00500	CGN 01019	0025	REPL SHORE POWER SYS	132920	132920	34
CGN	25	030	82	120191	00520	00520	DLGN09051	0025	WT & MOMENT COMPENSATION	156240	156240	35
CGN	25	030	82	120412	02190	02190	DLGN09050	0025	COMPUTER REPROGRAMMING	394200	394200	36
CGN	25	030	82	120446	01000	01000	DLGN01061	0025	UHF/VHF SEC VOICE VINSON	226400	226400	37
CGN	35	000	77	920411	00550	01198	DLGN00128	0035	NTDS-SLD STATE EXT CORE MEM UN	114356	152133	38
CGN	35	000	77	920411	00261	00275	DLGN00218	0035	NTDS REFRESHER MEM	52788	36507	39
CGN	35	11	79	890570	10539	10539	DLGN00277	0035	INSTL OUTBOARD/OUTRIGGER	2071020	2071020	40
CGN	35	11	79	890720	04500	04500	DLGN00118	0035	HARPOON	868000	868000	41
CGN	35	020	81	120473	01000	01000	DLGN00126	0035	ASMD DECOYS SUPER R30C	226400	226400	42
CGN	35	020	81	120711	03231	03231	DLGN00116	0035	ASMD PLAN-CLOSE IN WEAPS SYS	652856	652856	43
CGN	35	020	81	120446	01000	01000	DLGN00134	0035	UHF SECURE VOICE PLAIN CYPHER	226400	226400	44
CGN	35	020	81	120	02000	02000	CGN 00349	0035	MUTE	452800	452800	45
CGN	35	020	81	120123	00250	00250	CGN 00324	0035	MACHINRY SPACE ESCAPE TRUNKS	50800	50800	46
CGN	35	020	81	120440	00412	00412	CGN 00356	0035	IMPROVED CRT/ARO	84160	84160	47
CGN	35	020	81	120453	03000	03000	CGN 00351	0035	SPS-40 ATD	656000	656000	48
CGN	35	020	81	120321	00500	00500	CGN 00281	0035	REPL SHORE POWER SYS	125960	125960	49
CGN	35	020	81	120	00000	00000	DLGNW7110	0035	O/A FOR IMPROVED TRACK MODULE	1050000	53544	50

Unit 6 - Replacement Record Summary

SUMMARY OF REPLACEMENT RECORDS

CGN	35	000	79	890570	10539	10539	DLGN00277	0035	INSTL OUTBOARD/OUTRIGGER	2071020	2071020	40	D	
CGN	35	11	79	890570	10539	10539	DLGN00277	0035	INSTL OUTBOARD/OUTRIGGER	2071020	2071020	40	I	
CGN	35	000	79	890720	04500	04500	DLGN00118	0035	HARPOON	868000	868000	41	D	
CGN	35	11	79	890720	04500	04500	DLGN00118	0035	HARPOON	868000	868000	41	I	
CGN	37	000	78	925570	10539	10539	DLGN00043	0036	OUTBOARD/OUTRIGGER	2386020	2046249	126	D	
CGN	37	4	78	925570	10539	10539	DLGN00043	0036	OUTBOARD/OUTRIGGER	2386020	2046249	126	I	
CGN	40	000	80	890470	09000	09000	CGN 00014	0038	INSTL OUTBOARD/OUTRIGGER	1968000	1968000	165	D	
CGN	40	4	80	890470	09000	09000	CGN 00014	0038	INSTL OUTBOARD/OUTRIGGER	1968000	1968000	165	I	
CGN	40	000	80	890720	05000	05000	CGN 00038	0038	ASMD PLAN-HARPOON	981200	981200	166	D	
CGN	40	4	80	890720	05000	05000	CGN 00038	0038	ASMD PLAN-HARPOON	981200	981200	166	I	
CV	59	000	81	920671	00000	00630	CV 04160		EXPLOSIVE ORD DISPOSAL TEAM SP	0	128124	456	D	
CV	59	43	81	920671	00000	00630	CV 04160		EXPLOSIVE ORD DISPOSAL TEAM SP	0	128124	456	I	
CV	59	000	81	920191	01000	00400	CV 03800		WEIGHT/MOMENT COMP	0	78900	457	D	
CV	59	43	81	920191	00000	00400	CV 03800		WEIGHT/MOMENT COMP	0	78900	457	I	
CV	59	000	81	920436	00250	00250	CV 04651		REMOTE SHUTDN ALARMS-A/C UNITS	52538	50843	458	D	
CV	59	43	81	920436	00250	00250	CV 04651		REMOTE SHUTDN ALARMS-A/C UNITS	52538	50843	458	I	
CV	59	000	81	920643	00000	00834	CV 04711		MODIFY CREW SERVING LINES	0	169611	459	D	
CV	59	43	81	920643	00000	00834	CV 04711		MODIFY CREW SERVING LINES	0	169611	459	I	
CV	59	000	81	920644	01000	00575	CV 04696		ISOLATE CREW HEAD HOT WTR HTRS	0	116938	460	D	
CV	59	43	81	920644	01000	00575	CV 04696		ISOLATE CREW HEAD HOT WTR HTRS	0	116938	460	I	
CV	59	000	81	920588	00000	00126	CV 04664		NO.4 ACFT ELEVATOR CONTROL SYS	0	25625	461	D	
CV	59	43	81	920588	00000	00126	CV 04664		NO.4 ACFT ELEVATOR CONTROL SYS	0	25625	461	I	
CV	59	000	81	920437	01000	00260	CV 04646		BOILER STACK GAS TEMP IND	0	52876	462	D	
CV	59	43	81	920437	00000	00260	CV 04646		BOILER STACK GAS TEMP IND	0	52876	462	I	
CV	59	000	81	920491	01000	00142	CV 04611		INSTL FIXED RADIAC SYSTEM	0	28879	463	D	
CV	59	43	81	920491	00000	00142	CV 04611		INSTL FIXED RADIAC SYSTEM	0	28879	463	I	
CV	59	000	81	920437	00000	00456	CV 03719		INSTL OF PERM TORSIONMETERS	0	92737	464	D	
CV	59	43	81	920437	01000	00456	CV 03719		INSTL OF PERM TORSIONMETERS	0	92737	464	I	
CV	59	000	81	920441	00000	01000	CV 05198		INSTL IMPROVED UHF RADIO	0	203370	465	D	
CV	59	43	81	920441	01000	01000	CV 05198		INSTL IMPROVED UHF RADIO	0	203370	465	I	
CV	59	000	81	920780	00000	07250	CV 03954		STOW/HOLD FOR ZUNI-IWHS	0	1474433	466	D	
CV	59	43	81	920780	01000	07250	CV 03954		STOW/HOLD FOR ZUNI-IWHS	0	1474433	466	I	
CV	59	000	81	920783	00000	06520	CV 03952		PROV STWG FOR SIDEWINDER-IWHS	0	2367200	467	D	
CV	59	43	81	920783	01000	06520	CV 03952		PROV STWG FOR SIDEWINDER-IWHS	0	2367200	467	I	
CV	59	000	81	920446	01000	00300	CV 05080		INSTL KY-58	0	61011	468	D	
CV	59	43	81	920446	00000	00300	CV 05080		INSTL KY-58	0	61011	468	I	
CV	59	000	81	920432	01000	00063	CV 03540		INSTL CKT MJ/SUPPLY DEPT COMM	0	12917	469	D	
CV	59	43	81	920432	00000	00063	CV 03540		INSTL CKT MJ/SUPPLY DEPT COMM	0	12917	469	I	
CV	59	000	81	920437	01000	01055	CV 03360		MOD TO SMOKE IND SYSTEM	0	214556	470	D	
CV	59	43	81	920437	01000	01055	CV 03360		MOD TO SMOKE IND SYSTEM	0	214556	470	I	
CV	59	000	81	920441	01000	04000	CV 05196		INSTL SINGLE AUDIO SYS	0	716000	471	D	
CV	59	43	81	920441	01000	04000	CV 05196		INSTL SINGLE AUDIO SYS	0	716000	471	I	
CV	59	000	81	920446	00000	00600	CV 05194		INSTALL COMM SEC SYS	0	122022	472	D	
CV	59	43	81	920446	00000	00600	CV 05194		INSTALL COMM SEC SYS	0	122022	472	I	
CV	59	000	81	920644	01000	00930	CV 04737		ISOLATE SHOWER TO LOWER HUMID	0	189135	473	D	
CV	59	43	81	920644	00000	00930	CV 04737		ISOLATE SHOWER TO LOWER HUMID	0	189135	473	I	
CV	59	000	81	920412	00000	00000	CV 09050		COMPUTER PROGRAMMING	0	100000	474	D	
CV	59	43	81	920412	00000	00000	CV 09050		COMPUTER PROGRAMMING	0	100000	474	I	
CV	59	000	81	920252	01000	00230	CV 04387		INST NUCLEONIC BLR WTR LVL IND	0	46776	475	D	
CV	59	43	81	920252	00000	00230	CV 04387		INST NUCLEONIC BLR WTR LVL IND	0	46776	475	I	

3.3 PROGRAM ALTGEN

3.3.1 DESCRIPTION

In ALTGEN, DMAF and SAMIS are compared, and for each availability, one of the following situations is identified:

1) Availability only in DMAF
2) Availability only in SAMIS
3) SAMIS and DMAF match

In the first situation, the availability is skipped and a message is written to that effect on unit 1. Unsequenced availabilities are skipped.

In the second situation, the percent alterations on DMAF is set to zero, and a message is written to that effect on unit 13. No matrix is generated unless there are nuclear alterations in this availability. Alterations with work types UNSW, UNOW, UNOS, and MAP are not processed. If no matrix is generated, the alteration matrix number is set to 1500.

In the third situation, if the SWBS number is illegal (no depot maintenance planning module corresponding to that SWBS), a message is written to that effect on unit 2 and the alteration is bypassed. If the SAMIS manday total for an availability is zero, the availability is handled as in situation 2. The appropriate mandays are determined as in program MATCH.

For major alterations, a matrix is generated by accumulating the product of the alteration scope vectors and the SAMIS mandays in the row of the matrix corresponding to the SWBS number. The repair shop vectors are used for minor alterations and for major alterations with no alteration vectors.

If the total SAMIS mandays are zero, including possible substitution of FMP by AMT, the availability is handled as in situation 2.

Matrix numbers are assigned sequentially from one to a maximum of 1499. This number is entered into the DMAF file and the matrix is written to a random access file whose key is the matrix number. The matrix is written column-by-column and includes row and column totals.

Figure 3.3-1 presents a hierarchical diagram of the program ALTGEN.

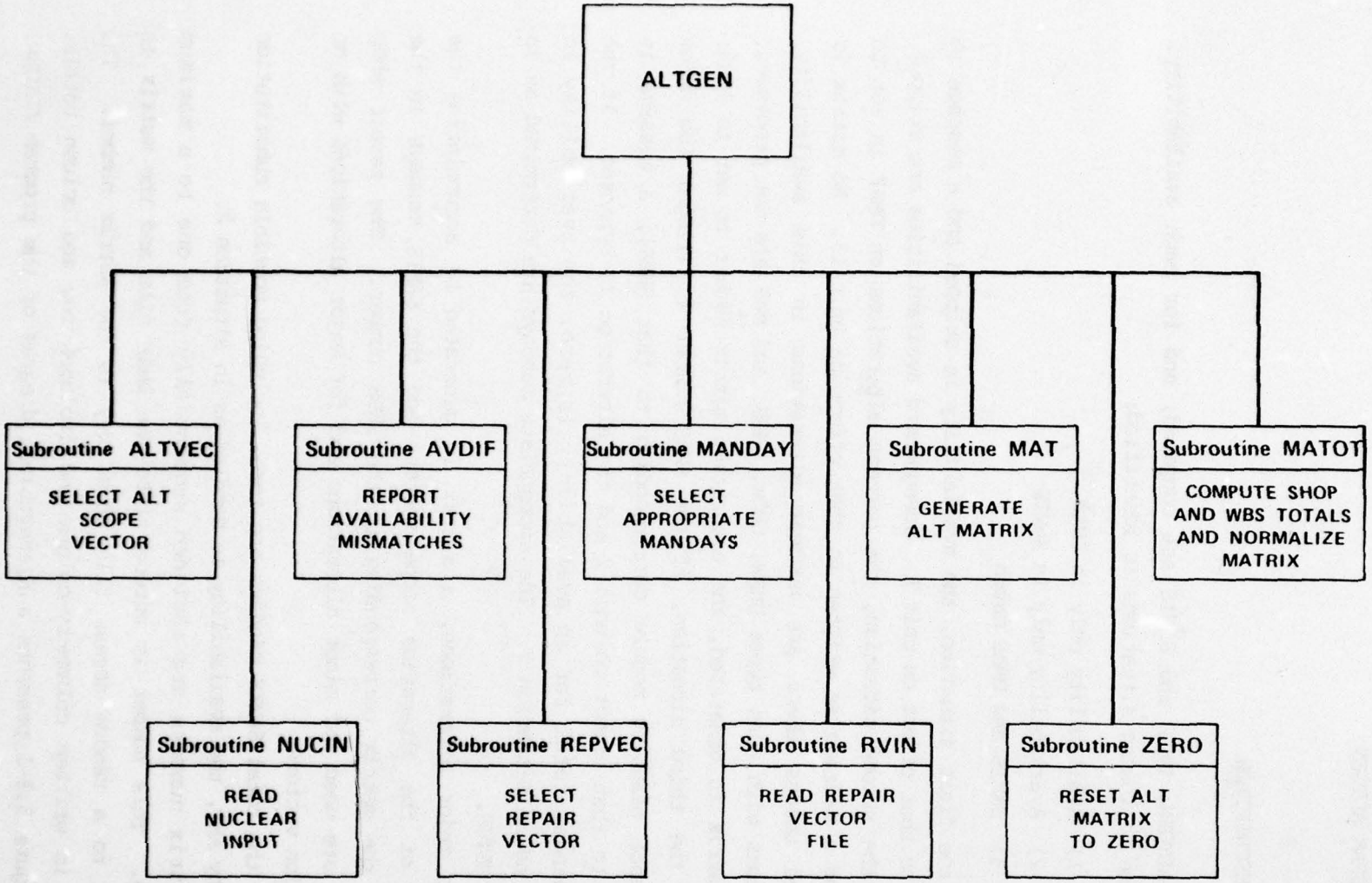

Figure 3.3-1 - ALTGEN Hierarchical Diagram

Main Program

The main program of ALTGEN reads the DMAF file from unit 3 and the SAMIS file from unit 4, edits them for errors, and compares them for availability matches. Alteration matrices of shops by one digit planning module groupings are generated utilizing alteration data from either the Repair Vector File found on unit 14 or the Major Alterations File from unit 11. Each matrix is assigned a sequential matrix number for the DMAF availability to which it applies. Nuclear alterations are read from unit 12.

ALTGEN utilizes the following subroutines: AVDIF, MANDAY, NUCIN, NUCMAT, REFVEC, RVIN, ALTVEC, MAT, MATOT, and ZERO. Run instructions and identification are input by cards, using unit 5. Output is generated using unit 6 for program flow and error messages; unit 1 for availabilities appearing only in DMAF; unit 13 for availabilities appearing only in SAMIS; unit 2 for errors in SWBS numbers; unit 10 for the alteration matrices; and unit 8 for the new DMAF with alteration matrix numbers (DMAF-2).

Subroutine AVDIF

This routine reports availabilities from SAMIS which do not appear on the DMAF file, and vice versa. The type, hull, and sequence number uniquely define an availability. These parameters from the SAMIS and DMAF files are compared in the main program. AVDIF is entered if a match does not exist. If AVDIF determines that a match does exist, an error message is written to the output file.

A message is written on the "availability mismatch" file indicating whether the availability appears only in DMAF or only in SAMIS. Flags denoting the condition are set for use in other modules of the program. Punched cards may be obtained to update either file.

Subroutine MANDAY

This subroutine selects the type of mandays to be used in the program. All carrier ship types use Fleet Modernization Program (FMP) estimates for

the execution and budget year. All other ship types use Amalgamated Military/ Technical Improvement Plan (AMT) manday values.

FMP estimates are replaced by AMT estimates according to the input data cards.

Subroutine NUCIN

This routine reads data on nuclear alterations. If the current ship type is non-nuclear a return is generated; otherwise, a nuclear alteration record is read. The routine then determines whether nuclear alterations data are present for the particular availability. The flag NUC is set to "1" if nuclear data are included; otherwise, it is set to "0".

Subroutine REPVEC

This routine selects the proper repair vectors set for minor alterations or unscoped major alterations. The repair vector file header records are scanned to determine which set covers the ship type under consideration. The proper set number is stored in IRV. If the current ship type is not covered by any repair vector set, IRV is set to zero and an error message is written to that effect on unit 6.

Subroutine RVIN

This routine reads and stores the repair shop vectors. Currently, there are three sets of vectors, one each for submarines, carriers, and other ship types. The routine reads these sets and tests to see whether other vector sets have been added to the file. If more than three sets exist, a message is written to that effect. Dimensions must then be adjusted manually to allow the extra sets to be read.

Subroutine ALTVEC

This routine selects the proper alteration vector from the Major Alterations File on the basis of ship type, class, and alteration number. The program determines whether data actually exist for the SAMIS alteration being processed and sets the flag "NOALT" to zero if the data exist; otherwise, "NOALT" is set to one.

Subroutine MAT

This routine makes a matrix of shops by one-digit planning module groupings. If no alterations data exist or if the alteration is small, the entries are accumulated in the array "X" by multiplying the proper repair vector by the SAMIS mandays. Scoped major alterations are entered into the matrix by multiplying the alteration vector by the SAMIS mandays.

Subroutine MATOT

This routine normalizes the matrix formed in subroutine MAT and assigns a number to the matrix. Shop and one-digit planning module totals are computed and the matrix is written to a random access file whose key is the matrix number. The matrix number is also written on the DMAF file.

Subroutine ZERO

This routine sets the alteration matrix entries to zero.

3.3.2 RUN SET-UP

The following set-up is used to run the ALTGEN program on the IBM 360/370 computer:

```
//NVSALTG JOB (XXXXXXXXXX,XXXXX),USER,CLASS=I,TIME=(,35),MSGLEVEL=1
//JOBLIB DD DSN=NVS01.DEPOT.LIB,DISP=SHR
// EXEC PGM=ALTG
//GO.FT05F001 DD *
```

ALTGEN card inputs (unit 5)

```
//GO.FT06F001 DD SYSOUT=A  (ERROR MESSAGES)
//GO.FT01F001 DD SYSOUT=A  (AVAILS. ONLY IN DMAF)
//GO.FT02F001 DD SYSOUT=A  (ILLEGAL SWBS)
//GO.FT03F001 DD DSN=NVS01.DMAF1.DATA,DISP=SHR
//GO.FT04F001 DD DSN=NVS01.SAMIS.DATA,DISP=SHR
//GO.FT08F001 DD DSN=NVS01.DMAF2.DATA,DISP=SHR
//GO.FT09F001 DD DSN=NVS01.DMPM.DATA,DISP=SHR
//GO.FT10F001 DD DSN=NVS01.MATRICES.DATA,DISP=(OLD,KEEP),
// UNIT=STORAGE,VOLUME=(PRIVATE,RETAIN,SER=999056)
//GO.FT11F001 DD DSN=NVS01.BIGALTS.DATA,DISP=SHR
//GO.FT12F001 DD DSN=NVS01.NUCALTS.DATA,DISP=SHR
//GO.FT13F001 DD SYSOUT=A  (AVAILS. ONLY IN SAMIS)
//GO.FT14F001 DD DSN=NVS01.DSM.DATA,DISP=SHR
```

3.3.3 INPUT

Card inputs are made using unit 5. The format for these cards is given in Section 3.3.3.1.

Unit 5 - Card inputs which (1) identify the execution year, (2) set the lower boundary of mandays for large alterations, (3) set the print option flag, (4) give the number of availabilities in which AMT replaces FMP mandays, (5) identify individual availabilities in which replacement occurs.

The following additional units are used to input information from disk files:

Unit 3 - Depot Maintenance Assignment File, Version 1 (DMAF-1)

Unit 4 - Ship Alterations Management Information System File (SAMIS)

Unit 9 - SWBS-to-DMPM Conversion

Unit 11 - Major Alterations File

Unit 12 - Nuclear Alteration Data

Unit 14 - Repair Shop Vectors

The formats for these units are given in Sections 3.3.3.2 through 3.3.3.7.

3.3.3.1 Unit 5 - Card Input

Card Type 1

Variable Name	Description	Field	Format
IEXYR	Execution year	1-2	I2
LARGE	Lower boundary for large alterations	3-9	I7
ITRACE	Print option flag	10-11	I2
MSWBF	Flag for printing illegal SWBS report	12-13	I2

Card Type 2

Variable Name	Description	Field	Format
NREP	Number of availabilities in which AMT replaces FMP MANDAYS	1-2	I2

Card Type 3

Variable Name	Description	Field	Format
REP	Individual availabilities in which replacement occurs:		
	Type	1-4	A4
	Hull number	5-8	I4
	Sequence number	9-12	I4
	Fiscal year	13-16	I4

Repeat this card NREP times. If NREP = 0, Card Type 3 is omitted.

3.3.3.2 Unit 3 - Depot Maintenance Assignment File, Version 1 (DMAF-1)

DMAF-1 contains information describing all depot maintenance ship-availabilities scheduled for yard-work at both Navy and privately owned shipyards during the selected five-fiscal-year period. Depot maintenance availabilities are those availabilities with a type of work other than Fitting Out (FO), Post Shakedown (PS), or New Construction (NC).

Each semi-annual period of a fiscal year within which an availability falls corresponds to a record of DMAF-1. Note that there may be more than one DMAF record for any particular availability.

The DMAF-1 file is sorted in ascending order by the following parameters:

Ship type
Hull number
Availability start date (year, month, day)
Fiscal year (this record)
Period (this record)

3.3.3.3 Unit 4 - Ship Alterations Management Information System File (SAMIS)

SAMIS contains information describing the alterations scheduled for yard-work at both Navy and privately owned shipyards for a seven-fiscal-year period.

Each record corresponds to a single alteration, and contains a brief description of the alteration, a unique alteration number, and the ship class to which the alteration number applies. If a particular alteration is scheduled for ships not belonging to the same class, different numbers are assigned to the alteration for each class.

The SAMIS file is sorted in ascending order by the following parameters:

Ship type
Hull number
Sequence number
Fiscal year

The format of each record in the SAMIS file is as follows:

Variable Name	Description	Field	Format
SAM(1)	Ship type	1-4	A4
SAM(2)	Hull number	5-8	I4
SAM(3)	Sequence number	9-12	I4
SAM(4)	Fiscal year	13-15	I3
SAM(5)	Type work	17-19	A3
SAM(6)	SWBS number	20-22	I3
SAM(7)	AMT mandays	27-31	I5
SAM(8)	FMP mandays	33-37	I5
SAM(9)	SAMIS type	41-44	A4
SAM(10-11)	Alteration identification number	45-49	A4,A1
SAM(12)	SAMIS class	53-56	A4
SAM(13-20)	Alteration brief	58-87	7A4,A2
SAM(21)	AMT fiscal expenditures	89-97	I9
SAM(22)	FMP fiscal expenditures	99-105	I7

3.3.3.4 Unit 9 - SWBS-to-DMPM Transformation

This file sets up a mapping between Ship Work Breakdown Structure (SWBS) numbers and Depot Maintenance Planning Module (DMPM) numbers.

Variable Name	Description	Field	Format
KDMPM(I)	Depot maintenance planning module number	1-4	I4
ISWB(J)	Lower boundary for the range of SWBS numbers corresponding to KDMPM(I)	7-9	I3
JSWB(J)	Upper boundary for the range of SWBS numbers corresponding to KDMPM(I)	11-13	I3

3.3.3.5 Unit 11 - Major Alterations File (MAF)

Variable Name	Description	Field	Format
TYPE(J)	Ship type	1-4	A4
CLASS(J)	Ship class	5-8	I4
ALNO (J,2)	Alteration identification number	12-16	A4,A1
VECTOR(I,J)	Alteration shop vector	20-79	10(F5.4,1X)

3.3.3.6 Unit 12 - Nuclear Alterations Data

No data have been compiled for this file.

Variable Name	Description	Field	Format
KNUC(1)	Ship type	1-4	A4
KNUC(2)	Hull number	5-8	I4
KNUC(3)	Sequence number	9-12	I4
KNUC(4)	Fiscal year	13-16	I4
KNUC(5)	Mandays	17-22	I6

3.3.3.7 Unit 14 - Repair Vectors

Initial Record.

Variable Name	Description	Field	Format
MUD	Dummy read variable	10	I1

Header Record.

Variable Name	Description	Field	Format
NT	Number of ship type ranges	10	I1
KTYP(I,J,K)	Ship types covered by a set of repair vectors	12-83	6(A4,1X,A4,3X)

Shop Vector Record. Following each header record are 79 pairs of DMPM-Shop Vector Records.

Variable Name	Description	Field	Format
RVEC(I,J,K)	Repair shop vector	11-80	10F7.4

3.3.4 OUTPUT

The following units are used by ALTGEN for generating hard-copy output:

Unit 1 - Availabilities only in DMAF

Unit 2 - Illegal SWBS

Unit 6 - Error messages and intermediate output

Unit 13 - Availabilities only in SAMIS

Section 3.3.7 gives samples of these outputs.

ALTGEN uses the following additional units to store information on disk for use by subsequent programs:

Unit 8 - Depot Maintenance Assignment File, Version 2 (DMAF-2)

Unit 10 - Alteration matrices (random access)

3.3.4.1 Unit 8 - Depot Maintenance Assignment File, Version 2 (DMAF-2)

DMAF-2 has the same format as DMAF-1 and, additionally, contains data in the alteration matrix number field.

Unit 10 is described in Section 3.1.3.2.

3.3.4.2 Unit 10 - Alteration Matrices

The alteration matrices are stored column-by-column in a 10-row by 21-column array on a random access device, and as such, have no FORTRAN format. The random access key corresponds to the alteration matrix number on DMAF-2.

Samples of the output on Units 8 and 10 are given in Section 3.3.7.

3.3.5 PROGRAM LISTING

```
C   MIKE  LAMATRICE   1 8 6 3              MAY 1976                                ALTG  10
C     PROGRAM ALTGEN(INPUT,OUTPUT,TAPE5=INPUT,TAPE6=OUTPUT,TAPE1=128,             ALTG  12
C    .TAPE2=128,TAPE3=128,TAPE4=128,TAPE8=128,TAPE9=128,TAPE10=128,               ALTG  14
C    .TAPE11=128,TAPE12=128,TAPE13=128,TAPE14=128)                                ALTG  16
C                                                                                 ALTG  20
C     THIS PROGRAM MAKES ALT MATRICES OF SHOPS BY ONE-DIGIT PLANNING              ALTG  30
C     MODULE GROUPINGS.  A SEQUENTIAL MATRIX NUMBER IS ASSIGNED TO EACH           ALTG  40
C     DMAF AVAILABILITY FOR WHICH THE MATRIX APPLIES.                             ALTG  50
C                                                                                 ALTG  60
C     NUCLEAR ALT DATA IS INPUT SEPARATELY TO THE PROGRAM.  LARGE ALTS            ALTG  70
C     ARE REPRESENTED BY ALT SCOPES,AND SMALL ALTS BY REPAIR DATA.                ALTG  80
C                                                                                 ALTG  90
C     INPUT FILES                                                                 ALTG 100
C                                                                                 ALTG 110
C       UNIT 3  DMAF                                                              ALTG 120
C       UNIT 4  SAMIS                                                             ALTG 130
C       UNIT 5  CARD INPUT *                                                      ALTG 140
C       UNIT 9  SWBS-TO-DMPM CONVERSION                                           ALTG 150
C       UNIT 11 ALT SCOPES                                                        ALTG 160
C       UNIT 12 NUCLEAR ALT DATA                                                  ALTG 170
C       UNIT 14 REPAIR VECTORS                                                    ALTG 180
C                                                                                 ALTG 190
C     OUTPUT FILES                                                                ALTG 200
C                                                                                 ALTG 210
C       UNIT 1  DMAF ONLY AVAILABILITIES                                          ALTG 220
C       UNIT 2  ILLEGAL SWBS                                                      ALTG 230
C       UNIT 6  PROGRAM FLOW AND ERROR MESSAGES                                   ALTG 240
C       UNIT 8  NEW DMAF WITH MATRIX NUMBER                                       ALTG 250
C       UNIT 10 ALT MATRICES                                                      ALTG 260
C       UNIT 13 SAMIS ONLY AVAILIBILITIES                                         ALTG 270
C                                                                                 ALTG 280
C     *  CARD INPUT                                                               ALTG 290
C                                                                                 ALTG 300
C       CARD   VARIABLE   DEFINITION                                  FORMAT      ALTG 310
C                                                                                 ALTG 320
C         1      IEXYR     EXECUTION YEAR                             I2          ALTG 330
C                LARGE     LOWER BOUND FOR LARGE ALTS                 I7          ALTG 340
C                ITRACE    PRINT FLAG OPTION                          I2          ALTG 350
C                MSWBF     PRINT OPTION FLAG FOR ILLEGAL SWBS         I2          ALTG 360
C         2      NREP      NO. OF AVAILABILITIES WHERE AMT            I2          ALTG 370
C                            REPLACES FMP MANDAYS                                 ALTG 380
C         3 *    REP       TYPE,HULL,SEQUENCE NUMBER,AND FISCAL       A4,3I4      ALTG 390
C                            YEAR OF THE MODIFIED AVAILABILITY                    ALTG 400
C                                                                                 ALTG 410
C  *   REPEAT CARD 3 NREP TIMES                                                   ALTG 420
C     IF NREP  0, THE SUCCEEDING CARDS ARE NOT USED                               ALTG 430
C                                                                                 ALTG 440
C   IF PROGRAM FLOW INFORMATION IS DESIRED, SET ITRACE = 1, OTHERWISE             ALTG 450
C       LEAVE IT BLANK                                                            ALTG 460
C                                                                                 ALTG 470
      DIMENSION ISKIP(8),KOMPM(79),ISWB(9),JSWB(9),MPM(1000)                      ALTG 480
     $   ,ISAM(4)                                                                 ALTG 490
      COMMON /ONE/SAM(22),IEXYR,MD,NREP,REP(4,100),MMPM,X(13,21),LMPM             ALTG 500
      COMMON /TWO/NOALT,RVEC(20,79,3),KTYP(2,6,3),AVEC(20)                        ALTG 510
     .   ,NTYP(3),NVEC,IRV,ITRACE                                                 ALTG 520
```

```
      COMMON /THREE/ DMAF(22),IENDSM,IENDMF,IDONLY,ISONLY,MANO          ALTG 530
      COMMON/FOUR/ DMFTOT,KNUC(5),MDTOT,NUC                             ALTG 540
      COMMON /FIVE/ EOF11,EOF12,KFIRST                                  ALTG 550
      INTEGER DMAF,SAM                                                  ALTG 560
      DATA IBLANK/1H /,ISKIP/  2HOW,2HNC,2HFO,2HPS,3HRAN,3HMAP,         ALTG 570
     .   2HOS,2HSW/                                                     ALTG 580
      DATA LTAF/3HTAF/,LSS/2HSS/                                        ALTG 590
      CALL RVIN                                                         ALTG 600
      IENDSM=0                                                          ALTG 610
      IENDMF=0                                                          ALTG 620
      LOOP=0                                                            ALTG 630
      IDONLY=0                                                          ALTG 640
      ISONLY=0                                                          ALTG 650
      NUC=1                                                             ALTG 660
      MALT=0                                                            ALTG 670
      MANO=0                                                            ALTG 680
      EOF11=0                                                           ALTG 690
      EOF12=0                                                           ALTG 700
      KFIRST=0                                                          ALTG 710
      CALL ZERO                                                         ALTG 720
      READ(5,500) IEXVR,LARGE,ITRACE,MSWBF                              ALTG 730
500    FORMAT(I2,I7,2I2)                                                ALTG 740
      DO 89 IM=1,1000                                                   ALTG 750
89    MPM(IM)=0                                                         ALTG 760
C                                                                       ALTG 770
C        READ SWBS TO DMPM TRANSFORMATION                               ALTG 780
C                                                                       ALTG 790
      DO 88 IG=1,79                                                     ALTG 800
      READ(9,80) KDMPM(IG),(ISWB(JG),JSWB(JG),JG=1,9)                   ALTG 810
80    FORMAT(I4,2X,18(I3,1X))                                           ALTG 820
      DO 84 JG=1,9                                                      ALTG 830
      IW=ISWB(JG)                                                       ALTG 840
      IF(IW.EQ.0) GO TO 88                                              ALTG 850
      JW=JSWB(JG)                                                       ALTG 860
      DO 82 KW=IW,JW                                                    ALTG 870
C                                                                       ALTG 880
C        MAP SWBS ONTO DMPM                                             ALTG 890
C                                                                       ALTG 900
82    MPM(KW)=IG                                                        ALTG 910
84    CONTINUE                                                          ALTG 920
88    CONTINUE                                                          ALTG 930
C                                                                       ALTG 940
C        READ DATA ON AVAILABILITIES WHERE AMT REPLACES FMP ESTIMATES   ALTG 950
C                                                                       ALTG 960
      READ(5,60) NREP                                                   ALTG 970
 60   FORMAT(I2)                                                        ALTG 980
      IF(NREP.EQ.0) GO TO 600                                           ALTG 990
      DO 65 IR=1,NREP                                                   ALTG1000
      READ(5,62) (REP(IN, IR ),IN=1,4)                                  ALTG1010
 62   FORMAT(A4,3I4)                                                    ALTG1020
 65   CONTINUE                                                          ALTG1030
C                                                                       ALTG1040
C        WRITE FILE HEADERS                                             ALTG1050
C                                                                       ALTG1060
600   WRITE( 1,601)                                                     ALTG1070
 601  FORMAT(' AVAILABILITIES ONLY IN DMAF',//                          ALTG1080
     $  4X,'TYPE HULL SEQ.NO.'/4X,'---- ---- -------'/)                 ALTG1090
      WRITE( 2,602)                                                     ALTG1100
 602  FORMAT(' ILLEGAL SWBS',//                                         ALTG1110
     $   4X,'SWBS   TYPE  HULL    SEQ.NO. ALT.NO.'/                    ALTG1120
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     $   4X,'----   ----  ----    ------- -------'/)                    ALTG1130
      WRITE(13,613)                                                     ALTG1140
  613 FORMAT(' AVAILABILITIES ONLY IN SAMIS',//                         ALTG1150
     $  4X,'TYPE HULL SEQ.NO.'/4X,'---- ---- -------'/)                 ALTG1160
      MDTOT=0                                                           ALTG1170
C                                                                       ALTG1180
C       READ DMAF AVAILABILITY                                          ALTG1190
1     READ(3,300,END=700)  DMAF                                         ALTG1200
  300 FORMAT(A4,A1,A4,2I4,A1,A3,2I6,A3,2A1,I2,I1,2I7,2I4,I3,I2,5X,I3,   ALTG1210
     1    8X,I6)                                                       ALTG1220
    3   IF(ITRACE.EQ.1) WRITE(6,90) DMAF(3),DMAF(4),DMAF(5)             ALTG1230
   90   FORMAT(' READING DMAF',1X,A4,2I4)                               ALTG1240
C     IF(DMAF(3).EQ.LSS) ITRACE=1                                       ALTG1250
C     IF(DMAF(3).NE.LSS) ITRACE=0                                       ALTG1260
C                                                                       ALTG1270
C    FIRST CARD OF AN AVAILABILITY?                                     ALTG1280
C                                                                       ALTG1290
      IF(DMAF(6).EQ.IBLANK) GO TO 2                                     ALTG1300
      DMAF(18)=MANO                                                     ALTG1310
C     IF(DMAF(3).NE.LSS) GO TO 1                                        ALTG1320
      WRITE(8,300) DMAF                                                 ALTG1330
      GO TO 1                                                           ALTG1340
C                                                                       ALTG1350
C    SKIPPABLE AVAILABILITY?                                            ALTG1360
C                                                                       ALTG1370
2     DO 4 I=1,8                                                        ALTG1380
      IF(DMAF(7).NE.ISKIP(I))GO TO 4                                    ALTG1390
C 17  IF(DMAF(3).NE.LSS)GO TO 1                                         ALTG1400
  17  DMAF(18)=1500                                                     ALTG1410
      DMAF(18)=1500                                                     ALTG1420
      WRITE(8,300) DMAF                                                 ALTG1430
      READ(3,300,END=700) DMAF                                          ALTG1440
      IF(DMAF(6).NE.IBLANK) GO TO 17                                    ALTG1450
      BACKSPACE 3                                                       ALTG1460
      GO TO 1                                                           ALTG1470
4     CONTINUE                                                          ALTG1480
      IF(ITRACE.EQ.1) WRITE(6,91)                                       ALTG1490
  91  FORMAT(' GOOD DMAF')                                              ALTG1500
      IF(IENDSM.EQ.1) GO TO 12                                          ALTG1510
      IF(LOOP.EQ.0) GO TO 9                                             ALTG1520
      GO TO 10                                                          ALTG1530
C                                                                       ALTG1540
C       RESET PREVIOUS SAMIS AVAILABILITY FLAGS                         ALTG1550
C                                                                       ALTG1560
6     DO 7 I=1,4                                                        ALTG1570
7     ISAM(I)=SAM(I)                                                    ALTG1580
C                                                                       ALTG1590
C        READ SAMIS ALT                                                 ALTG1600
9     READ(4,400,END=800)  SAM                                          ALTG1610
400   FORMAT(A4,2I4,I3,1X,A3,I3,4X,I5,1X,I5,3X,A4,A4,A1,3X,A4,          ALTG1620
     .   1X,7A4,A2,I10,I8)                                              ALTG1630
      IF(SAM(1).EQ.LTAF) GO TO 800                                      ALTG1640
      IF(ITRACE.EQ.1) WRITE(6,92) (SAM(IB),IB=1,3)                      ALTG1650
  92  FORMAT(' READING SAMIS',1X,A4,I4,I3)                              ALTG1660
C                                                                       ALTG1670
C    TEST FOR PHONY SAMIS                                               ALTG1680
C                                                                       ALTG1690
      IF(SAM(3).EQ.0) GO TO 9                                           ALTG1700
C                                                                       ALTG1710
C    ERROR CHECK SWBS NUMBER                                            ALTG1720
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C                                                                       ALTG1730
8     IF(SAM(6).EQ.0) GO TO 11                                          ALTG1740
      IF(MPM(SAM(6)).NE.0) GO TO 13                                     ALTG1750
11    IF(MSWBF.EQ.0) GO TO 9                                            ALTG1760
      WRITE(2,15)SAM(5),SAM(1),SAM(2),SAM(3),SAM(10),SAM(11)            ALTG1770
15    FORMAT(1X,I6,5X,A4,I4,5X,I4,5X,A4,A1)                             ALTG1780
      GO TO 9                                                           ALTG1790
C                                                                       ALTG1800
C     FIRST LOOP THROUGH PROGRAM ?                                      ALTG1810
C                                                                       ALTG1820
13    IF(LOOP.EQ.0) GO TO 10                                            ALTG1830
C                                                                       ALTG1840
C     SAME SAMIS AVAILABILITY AS PREVIOUS ONE?                          ALTG1850
C                                                                       ALTG1860
      IF(ITRACE.EQ.1) WRITE(6,94) (SAM(I),I=1,4),ISAM                   ALTG1870
94    FORMAT(' SAM ',A4,I5,2I3,5X,'ISAM ',A4,I5,2I3)                    ALTG1880
      IF(SAM(1).NE.ISAM(1)) GO TO 14                                    ALTG1890
      IF(SAM(2).NE.ISAM(2)) GO TO 14                                    ALTG1900
      IF(SAM(3).NE.ISAM(3)) GO TO 14                                    ALTG1910
      IF(ISONLY.EQ.1) GO TO 9                                           ALTG1920
C                                                                       ALTG1930
C     SAMIS AND DMAF AVAILABILITY MATCH?                                ALTG1940
C                                                                       ALTG1950
10    LOOP=1                                                            ALTG1960
      IF(SAM(1  ).NE.DMAF(3)) GO TO 12                                  ALTG1970
      IF(SAM(2  ).NE.DMAF(4)) GO TO 12                                  ALTG1980
      IF(SAM(3  ).NE.DMAF( 5))GO TO 12                                  ALTG1990
      IDONLY=0                                                          ALTG2000
      ISONLY=0                                                          ALTG2010
      IF(ITRACE.EQ.1) WRITE(6,95)                                       ALTG2020
  95  FORMAT(' SAMIS & DMAF MATCH')                                     ALTG2030
C                                                                       ALTG2040
C     DETERMINE TYPE OF MAN DAY FIGURES TO BE USED                      ALTG2050
C                                                                       ALTG2060
      CALL MANDAY                                                       ALTG2070
C                                                                       ALTG2080
C        SUM SAMIS MANDAYS                                              ALTG2090
C                                                                       ALTG2100
      MDTOT=MDTOT+MD                                                    ALTG2110
C                                                                       ALTG2120
C     TREAT SMALL ALTS AS REPAIRS                                       ALTG2130
C                                                                       ALTG2140
      IF(MD   .GT.LARGE) GO TO 50                                       ALTG2150
      IF(ITRACE.EQ.1) WRITE(6,40)                                       ALTG2160
40    FORMAT(31H SMALL ALT, REPAIR DATA USED      )                     ALTG2170
35    IF(MALT.NE.0) GO TO 42                                            ALTG2180
C                                                                       ALTG2190
C     READ REPAIR SHOP VECTORS                                          ALTG2200
C                                                                       ALTG2210
      CALL REPVEC                                                       ALTG2220
      MALT=1                                                            ALTG2230
42    NOALT=1                                                           ALTG2240
      IF(IRV.NE.0) GO TO 55                                             ALTG2250
      WRITE(6,45)  (DMAF(ISA),ISA=3,5)                                  ALTG2260
45    FORMAT(30H NO DATA FOR THIS AVAILABILITY  ,1X,A4,2I6)             ALTG2270
      GO TO 3                                                           ALTG2280
C                                                                       ALTG2290
C     READ ALT SCOPES                                                   ALTG2300
C                                                                       ALTG2310
50    CALL ALTVEC                                                       ALTG2320
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      IF(NOALT.EQ.1) GO TO 35                                          ALTG2330
C                                                                      ALTG2340
C   MAKE A MATRIX                                                      ALTG2350
C                                                                      ALTG2360
55    LMPM=MPM(SAM(6))                                                 ALTG2370
      MMPM=KDMPM(LMPM)                                                 ALTG2380
      IF(ITRACE.EQ.1) WRITE(6,56)KDMPM(MPM(SAM(6))),MPM(SAM(6)),SAM(6) ALTG2390
56    FORMAT(5X,3I10)                                                  ALTG2400
      CALL MAT                                                         ALTG2410
      GO TO 6                                                          ALTG2420
C                                                                      ALTG2430
C    REPORT ON AVAILABILITY MISMATCHES                                 ALTG2440
C                                                                      ALTG2450
12    CALL AVDIF                                                       ALTG2460
      IF(ITRACE.EQ.1) WRITE(6,97) IDONLY,ISCNLY                        ALTG2470
  97  FORMAT(' DMAF & SAMIS MISMATCH',2I3)                             ALTG2480
C                                                                      ALTG2490
C   NO MATRIX IS MADE IF THE AVAILABILITY IS IN SAMIS ONLY             ALTG2500
C                                                                      ALTG2510
      IF(ISCNLY.EQ.1) GO TO 6                                          ALTG2520
C                                                                      ALTG2530
C   READ NUCLEAR INPUT                                                 ALTG2540
C                                                                      ALTG2550
27    CALL NUCIN                                                       ALTG2560
      IF(NUC.EQ.1) GO TO 28                                            ALTG2570
C                                                                      ALTG2580
C   NO MATRIX IS MADE IF NONNUCLEAR AVAILABILITIES ARE ONLY IN DMAF    ALTG2590
C                                                                      ALTG2600
C   MATRIX NUMBER SET TO 1500                                          ALTG2610
C                                                                      ALTG2620
26    DMAF(18)=1500                                                    ALTG2630
C                                                                      ALTG2640
C    SET PER CENT ALT TO ZERO                                          ALTG2650
C                                                                      ALTG2660
      DMAF(19)=0                                                       ALTG2670
C     IF(DMAF(3).NE.LSS)GO TO 32                                       ALTG2680
      WRITE(8,300) DMAF                                                ALTG2690
C 32  CONTINUE                                                         ALTG2700
      READ(3,300,END=700) DMAF                                         ALTG2710
      IF(DMAF(6).EQ.IBLANK) GO TO 3                                    ALTG2720
      GO TO 26                                                         ALTG2730
C                                                                      ALTG2740
C   A MATRIX IS MADE FOR NUCLEAR DMAF AVAILABILITIES                   ALTG2750
C                                                                      ALTG2760
28    CALL MAT                                                         ALTG2770
      MALT=0                                                           ALTG2780
      CALL MATOT                                                       ALTG2790
      MDTOT=0                                                          ALTG2800
24    READ(3,300,END=700) DMAF                                         ALTG2810
      IF(DMAF(6).EQ.IBLANK) GO TO 30                                   ALTG2820
      DMAF(18)=MANO                                                    ALTG2830
      IF(DMAF(16).EQ.0) GO TO 31                                       ALTG2840
      DMAF(19)=100*KNUC(5)/DMAF(16)                                    ALTG2850
31    CONTINUE                                                         ALTG2860
      WRITE(8,300) DMAF                                                ALTG2870
      GO TO 24                                                         ALTG2880
30    CALL ZERO                                                        ALTG2890
      GO TO 3                                                          ALTG2900
C                                                                      ALTG2910
C   SUMMARIZE AN AVAILABILITY                                          ALTG2920
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C                                                                       ALTG2930
14    IF(ISCNLY.EQ.1) GO TO 10                                          ALTG2940
      MALT=0                                                            ALTG2950
      IF(MDTOT.NE.0) GO TO 75                                           ALTG2960
      IF(ITRACE.EQ.1) WRITE(6,98)                                       ALTG2970
  98  FORMAT(' SAMIS AVAIL. COMP.')                                     ALTG2980
      CALL ZERO                                                         ALTG2990
C                                                                       ALTG3000
C   IF SAMIS MANDAY TOTAL IS ZERO, TREAT AS DMAF ONLY CASE              ALTG3010
C                                                                       ALTG3020
      GO TO 27                                                          ALTG3030
75    CALL MATOT                                                        ALTG3040
      MDTOT=0                                                           ALTG3050
70    READ(3,300,END=700)  DMAF                                         ALTG3060
      IF(DMAF(6).EQ.IBLANK) GO TO 76                                    ALTG3070
      DMAF(18)=MANO                                                     ALTG3080
C     IF(DMAF(3).NE.LSS)GO TO 70                                        ALTG3090
      WRITE(8,300) DMAF                                                 ALTG3100
      GO TO 70                                                          ALTG3110
76    CALL ZERO                                                         ALTG3120
      GO TO 3                                                           ALTG3130
C                                                                       ALTG3140
C     DMAF AND SAMIS COMPLETED?                                         ALTG3150
C                                                                       ALTG3160
700   IF(IENDSM.NE.0 ) GO TO 16                                         ALTG3170
      IENDMF=1                                                          ALTG3180
      GO TO 12                                                          ALTG3190
800   IF(IENDMF.NE.0 ) GO TO 16                                         ALTG3200
      IENDSM=1                                                          ALTG3210
      IF(IDCNLY.EQ.1.OR.ISONLY.EQ.1) GO TO 12                           ALTG3220
      GO TO 14                                                          ALTG3230
16    STOP                                                              ALTG3240
      END                                                               ALTG3250
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```
      SUBROUTINE ALTVEC                                                 ALTG3260
C                                                                       ALTG3270
C     THIS ROUTINE SELECTS THE PROPER ALT SCOPE VECTOR FOR USE IN       ALTG3280
C       MAKING THE ALT MATRIX                                           ALTG3290
C                                                                       ALTG3300
      COMMON/ONE/SAM(22),IEXYR,MO,NREP,REP(4,10),MMPM,X(10,21),LMPM     ALTG3310
      COMMON /TWO/NOALT,RVEC(20,79,3),KTYP(2,6,3),AVEC(20)              ALTG3320
     .    ,NTYP(3),NVEC,IRV,ITRACE                                      ALTG3330
      COMMON /FIVE/ EOF11,EOF12,KFIRST                                  ALTG3340
      DIMENSION VECTOR(20,500)                                          ALTG3345
      INTEGER TYPE(500),CLASS(500),ALNO(500,2),SAM                      ALTG3350
      IF(EOF11.EQ.1) GO TO 50                                           ALTG3360
      IF(KFIRST.EQ.1) GO TO 12                                          ALTG3370
C                                                                       ALTG3380
C   READ MAJOR ALT FILE                                                 ALTG3390
2     DO 70 J=1,500                                                     ALTG3400
      READ(11,10,END=49) TYPE(J),CLASS(J),ALNO(J,1),ALNO(J,2)           ALTG3410
     .  ,(VECTOR(JF,J),JF=1,20)                                         ALTG3415
10    FORMAT(A4,I4,3X,A4,A1,3X,10(F5.4,1X),/19X,10(F5.4,1X)/)           ALTG3420
      KFIRST=1                                                          ALTG3430
      IF(J.EQ.1) GO TO 69                                               ALTG3440
      IF(TYPE(J).EQ.TYPE(J-1)) GO TO 69                                 ALTG3450
      DO 68 IB=1,3                                                      ALTG3455
68    BACKSPACE 11                                                      ALTG3460
      GO TO 12                                                          ALTG3470
69    JJ=J                                                              ALTG3480
70    CONTINUE                                                          ALTG3490
      WRITE(6,71) TYPE(J),CLASS(J),ALNO(J,1),ALNO(J,2)                  ALTG3500
71    FORMAT(26H MAJOR ALT ARRAY OVERFLOW   ,A4,2(1X,A4),A1)            ALTG3510
      GO TO 50                                                          ALTG3520
C                                                                       ALTG3530
C   IS THIS DMAF AVAILABILITY ALSO IN THE MAJOR ALT FILE                ALTG3540
12    IF(TYPE(1)-SAM(1)) 2,15,50                                        ALTG3550
15    DO 80 K=1,JJ                                                      ALTG3560
      IF(CLASS(K).NE.SAM(12)) GO TO 80                                  ALTG3570
      IF(ALNO(K,1).NE.SAM(10)) GO TO 80                                 ALTG3580
      IF(ALNO(K,2).EQ.SAM(11)) GO TO 35                                 ALTG3590
80    CONTINUE                                                          ALTG3600
      GO TO 50                                                          ALTG3610
C                                                                       ALTG3620
C   SET FLAG THAT DATA EXISTS FOR THIS ALT                              ALTG3630
35    NOALT=0                                                           ALTG3640
      IF(ITRACE.EQ.1) WRITE(6,30)                                       ALTG3650
30    FORMAT(25H GOOD DATA FOR THIS ALT                                 ALTG3660
      DO 60 IA=1,20                                                     ALTG3670
60    AVEC(IA)=VECTOR(IA,K)                                             ALTG3680
      RETURN                                                            ALTG3690
C                                                                       ALTG3700
C   SET FLAG THAT NO DATA EXISTS FOR THIS ALT                           ALTG3710
49    EOF11=1                                                           ALTG3720
50    NOALT=1                                                           ALTG3730
      IF(ITRACE.EQ.1) WRITE(6,40)                                       ALTG3740
40    FORMAT(42H NO DATA FOR THIS ALT, REPAIR DATA USED.                ALTG3750
      RETURN                                                            ALTG3760
      END                                                               ALTG3770
```

```
      SUBROUTINE AVDIF                                                  ALTG3780
C                                                                       ALTG3790
C      THIS ROUTINE REPORTS AVAILABILITIES WHICH ARE UNIQUE TO          ALTG3800
C           SAMIS OR DMAF                                               ALTG3810
C                                                                       ALTG3820
      COMMON /ONE/SAM(22),IEXYR,MD,NREP,REP(4,100),MMPM,X(10,21),LMPM   ALTG3830
      COMMON /THREE/ DMAF(22),IENDSM,IENDMF,IDONLY,ISONLY,MANO          ALTG3840
      INTEGER SAM,DMAF                                                  ALTG3850
C                                                                       ALTG3860
C      IF EITHER FILE IS COMPLETED, NO TESTING IS NECESSARY             ALTG3870
C                                                                       ALTG3880
      IF(IENDSM.EQ.1) GO TO 10                                          ALTG3890
      IF(IENDMF.EQ.1) GO TO 20                                          ALTG3900
C                                                                       ALTG3910
C      DETERMINE THE FILE WHICH UNIQUELY CONTAINS THE ALT               ALTG3920
C                                                                       ALTG3930
      IF(SAM(1)-DMAF(3)) 20,2,10                                        ALTG3940
2     IF(SAM(2)-DMAF(4)) 20,3,10                                        ALTG3950
  3   IF(SAM(3)-DMAF( 5)) 20,4,10                                       ALTG3960
4     WRITE(6,5)(SAM(IA),IA=1,3),(DMAF(IA),IA=3,5)                      ALTG3970
  5   FORMAT(' IRRECONCILABLE SEQUENCE ERROR'/' SAMIS ',A4,2I5,         ALTG3980
     1    ' DMAF ',A4,2I5)                                             ALTG3990
      RETURN                                                            ALTG4000
C                                                                       ALTG4010
C      REPORT ON AVAILIBILITIES ONLY IN DMAF                            ALTG4020
C                                                                       ALTG4030
10    WRITE(1,16) DMAF(3),DMAF(4),DMAF( 5)                              ALTG4040
16    FORMAT(5X,A4,I4,I5)                                               ALTG4050
C                                                                       ALTG4060
C      SET FLAG TO SHOW DMAF ONLY                                       ALTG4070
C                                                                       ALTG4080
      ISONLY=0                                                          ALTG4090
      IDONLY=1                                                          ALTG4100
      RETURN                                                            ALTG4110
C                                                                       ALTG4120
C      REPORT ON AVAILIBILITIES ONLY IN SAMIS                           ALTG4130
C                                                                       ALTG4140
20    WRITE(13,16)(SAM(IA),IA=1,3)                                      ALTG4150
C                                                                       ALTG4160
C      SET FLAG TO SHOW SAMIS ONLY                                      ALTG4170
C                                                                       ALTG4180
      IDONLY=0                                                          ALTG4190
      ISONLY=1                                                          ALTG4200
      RETURN                                                            ALTG4210
      END                                                               ALTG4220
```

```
      SUBROUTINE MANDAY                                                 ALTG4230
C                                                                       ALTG4240
C       THIS ROUTINE SELECTS THE TYPE OF MAN DAYS USED BY THE PROGRAM   ALTG4250
C                                                                       ALTG4260
      COMMON /ONE/SAM(22),IEXYR,MD,NREP,REP(4,100),MMPM,X(10,21),LMPM   ALTG4270
      INTEGER CV,SAM,CVN,CVT                                            ALTG4280
      DATA CV/2HCV/,CVN/3HCVN/,CVT/3HCVT/                               ALTG4290
C                                                                       ALTG4300
C     USE FMP FIGURES FOR CV                                            ALTG4310
C                                                                       ALTG4320
      IF(SAM(1).EQ.CV) GO TO 2                                          ALTG4330
      IF(SAM(1).EQ.CVN)GO TO 2                                          ALTG4340
      IF(SAM(1).EQ.CVT)GO TO 2                                          ALTG4350
C                                                                       ALTG4360
C     USE FMP FIGURES FOR EXECUTION OR BUDGET YEAR                      ALTG4370
C                                                                       ALTG4380
      IF(SAM(4).EQ.IEXYR.OR.SAM(4).EQ.IEXYR+1) GO TO 2                  ALTG4390
C                                                                       ALTG4400
C     USE AMT FIGURES FOR REMAINING CASES                               ALTG4410
C                                                                       ALTG4420
      MD=SAM(7)                                                         ALTG4430
      RETURN                                                            ALTG4440
2     MD=SAM(8)                                                         ALTG4450
      IF(SAM(1).EQ.CV) RETURN                                           ALTG4460
      IF(SAM(1).EQ.CVN.OR.SAM(1).EQ.CVT) RETURN                         ALTG4470
C                                                                       ALTG4480
C     REPLACE FMP ZERO MAN DAYS WITH AMT NONZERO MAN DAYS               ALTG4490
C                                                                       ALTG4500
      IF(SAM(8).NE.0.OR.SAM(7).EQ.0) RETURN                             ALTG4510
      IF(NREP.EQ.0) RETURN                                              ALTG4520
      DO 30 I=1,NREP                                                    ALTG4530
      IF(SAM(1).NE.REP(1,I)) GO TO 30                                   ALTG4540
      IF(SAM(2).NE.REP(2,I)) GO TO 30                                   ALTG4550
      IF(SAM(3).EQ.0) GO TO 10                                          ALTG4560
      IF(SAM(3).NE.REP(3,I)) GO TO 30                                   ALTG4570
      GO TO 20                                                          ALTG4580
10    IF(SAM(4).NE.REP(4,I)) GO TO 30                                   ALTG4590
      GO TO 20                                                          ALTG4600
30    CONTINUE                                                          ALTG4610
      RETURN                                                            ALTG4620
20    MD=SAM(7)                                                         ALTG4630
      RETURN                                                            ALTG4640
      END                                                               ALTG4650
```

```
      SUBROUTINE MAT                                                    ALTG4660
C                                                                       ALTG4670
C     THIS ROUTINE MAKES A MATRIX OF SHOPS BY ONE-DIGIT PLANNING MODULE ALTG4680
C        GROUPINGS.                                                     ALTG4690
C                                                                       ALTG4700
      COMMON /ONE/SAM(22),IEXYR,MO,NREP,REP(4,100),MMPM,X(10,21),LMPM   ALTG4710
      COMMON /TWO/NOALT,RVEC(20,79,3),KTYP(2,6,3),AVEC(20)              ALTG4720
     .   ,NTYP(3),NVEC,IRV,ITRACE                                       ALTG4730
      MP=MMPM/1000                                                      ALTG4740
      IF(NOALT.EQ.0) GO TO 20                                           ALTG4750
C                                                                       ALTG4760
C     MAKE A MATRIX USING REPAIR VECTORS                                ALTG4770
C                                                                       ALTG4780
      DO 10 IS=1,20                                                     ALTG4790
      X(MP,IS)=X(MP,IS)+RVEC(IS,LMPM,IRV)*FLOAT(MO)                     ALTG4800
      IF(ITRACE.EQ.1) WRITE(6,15) X(MP,IS),RVEC(IS,LMPM,IRV),           ALTG4810
     .   MO,MP,MMPM,IRV                                                 ALTG4820
15    FORMAT(2F10.3,4I10)                                               ALTG4830
10    CONTINUE                                                          ALTG4840
      RETURN                                                            ALTG4850
C                                                                       ALTG4860
C     MAKE A MATRIX USING ALT VECTORS                                   ALTG4870
C                                                                       ALTG4880
20    DO 30 IS=1,20                                                     ALTG4890
      X(MP,IS)=X(MP,IS)+AVEC(IS)*FLOAT(MO)                              ALTG4900
      IF(ITRACE.EQ.1) WRITE(6,15) X(MP,IS),AVEC(IS),MO,MP,MMPM          ALTG4910
30    CONTINUE                                                          ALTG4920
      RETURN                                                            ALTG4930
      END                                                               ALTG4940
```

```
      SUBROUTINE MATOT                                                  ALTG4950
C                                                                       ALTG4960
C       THIS ROUTINE NORMALIZES THE MATRIX FORMED IN SUBROUTINE MAT     ALTG4970
C         AND ASSIGNS A MATRIX NUMBER TO IT.  THE MATRIX AND THE NEW    ALTG4980
C         DMAF, WHICH INCLUDES THE MATRIX NUMBER, ARE WRITTEN.          ALTG4990
C                                                                       ALTG5000
      COMMON /ONE/SAM(22),IEXYR,MO,NREP,REP(4,100),MMPM,X(10,21),LMPM   ALTG5010
      COMMON /THREE/ DMAF(22),IENDSM,IENDMF,IDONLY,ISONLY,MANO          ALTG5020
      INTEGER DMAF                                                      ALTG5040
      DATA LSS/2HSS/                                                    ALTG5050
      DEFINE FILE 10(3000,840,L,IDUM)                                   ALTG5055
C                                                                       ALTG5060
C     COMPUTE THE SHOP TOTALS                                           ALTG5070
      DO 10 IS=1,20                                                     ALTG5080
      DO 10 IPM=1,9                                                     ALTG5090
10    X(10,IS)=X(10,IS)+X(IPM,IS)                                       ALTG5100
C                                                                       ALTG5110
C     COMPUTE THE GROUPED PLANNING MODULE TOTALS                        ALTG5120
      DO 20 IS=1,20                                                     ALTG5130
      DO 20 IPM=1,10                                                    ALTG5140
20    X(IPM,21)=X(IPM,21)+X(IPM,IS)                                     ALTG5150
C                                                                       ALTG5160
C     NORMALIZE THE MATRIX ENTRIES                                      ALTG5170
      DO 30 IS=1,21                                                     ALTG5180
      DO 30 IPM=1,10                                                    ALTG5190
      IF(X(10,21).NE.0) GO TO 30                                        ALTG5200
      WRITE(6,35) (DMAF(IDA),IDA=3,5)                                   ALTG5210
35    FORMAT(' --- DIVIDE CHECK ---  ',A4,2I6)                          ALTG5220
      DMAF(18)=1500                                                     ALTG5230
      WRITE(8,60) DMAF                                                  ALTG5240
      RETURN                                                            ALTG5250
30    X(IPM,IS) =X(IPM,IS)/X(10,21)                                     ALTG5260
C                                                                       ALTG5270
C     ASSIGN A MATRIX NUMBER                                            ALTG5280
      MANO=MANO+1                                                       ALTG5290
      DMAF(18)=MANO                                                     ALTG5300
      IF(DMAF(18).LT.1501)) GO TO 50                                    ALTG5310
C                                                                       ALTG5320
C     WRITE ERROR MESSAGE IF MAXIMUM MATRIX NUMBER IS EXCEEDED          ALTG5330
      WRITE(6,40) DMAF(18)                                              ALTG5340
40    FORMAT(' MATRIX NUMBER GREATER THAN 1500',I10)                    ALTG5350
      RETURN                                                            ALTG5360
C                                                                       ALTG5370
C     WRITE NEW DMAF AND MATRIX                                         ALTG5380
C 50  IF(DMAF(3).NE.LSS) RETURN                                         ALTG5390
50    WRITE(8,60) DMAF                                                  ALTG5400
60    FORMAT(A4,A1,A4,2I4,A1,A3,2I6,A3,2A1,I2,I1,2I7,2I4,I3,I2,5X,I3,   ALTG5410
     1   8X,I6)                                                         ALTG5420
      MN=DMAF(18)                                                       ALTG5430
      WRITE(10'MN)((X(I,J),I=1,10),J=1,21)                              ALTG5440
      RETURN                                                            ALTG5450
      END                                                               ALTG5460
```

```
      SUBROUTINE NUCIN                                                  ALTG5470
C                                                                       ALTG5480
C     THIS ROUTINE READS DATA ON NUCLEAR ALTS                           ALTG5490
C                                                                       ALTG5500
      DIMENSION NUCTYP(4)                                               ALTG5510
      COMMON /THREE/ DMAF(22),IENDSM,IENDMF,IDONLY,ISONLY,MANO          ALTG5520
      COMMON/FOUR/ DMFTOT,KNUC(5),MDTOT,NUC                             ALTG5530
      COMMON /FIVE/ EOF11,EOF12,KFIRST                                  ALTG5540
      INTEGER DMAF                                                      ALTG5550
      DATA NUCTYP/3HCGN,3HCVN,4HSSBN,3HSSN/                             ALTG5560
      IF(EOF12.EQ.1) RETURN                                             ALTG5570
C                                                                       ALTG5580
C     RETURN IF CURRENT SHIP IS NOT NUCLEAR                             ALTG5590
C                                                                       ALTG5600
      DO 10 I=1,4                                                       ALTG5610
      IF(DMAF(3).EQ.NUCTYP(I)) GO TO 25                                 ALTG5620
10    CONTINUE                                                          ALTG5630
      NUC=0                                                             ALTG5640
      RETURN                                                            ALTG5650
25    IF(NUC.EQ.0) GO TO 40                                             ALTG5660
C                                                                       ALTG5670
C     READ DATA FOR THIS SHIP TYPE                                      ALTG5680
C                                                                       ALTG5690
20    READ(12,30,END=49) KNUC                                           ALTG5700
30    FORMAT(A4,3I4,I6)                                                 ALTG5710
C                                                                       ALTG5720
C     DOES DATA APPLY TO THIS AVAILABILITY ?                            ALTG5730
C                                                                       ALTG5740
40    IF(DMAF(3)-KNUC(1)) 50,42,20                                      ALTG5750
42    IF(DMAF(4)-KNUC(2)) 50,44,20                                      ALTG5760
44    IF(DMAF(5).EQ.0) GO TO 46                                         ALTG5770
      IF(DMAF(5)-KNUC(3)) 50,60,20                                      ALTG5780
46    IF(DMAF(13)-KNUC(4))50,60,20                                      ALTG5790
C                                                                       ALTG5800
C     SET FLAG THAT NO APPLICABLE DATA EXISTS FOR THIS AVAILABILITY     ALTG5810
C                                                                       ALTG5820
49    EOF12=1                                                           ALTG5830
50    NUC=0                                                             ALTG5840
      RETURN                                                            ALTG5850
C                                                                       ALTG5860
C     SET FLAG THAT DATA EXISTS FOR THIS AVAILABILITY                   ALTG5870
C                                                                       ALTG5880
60    NUC=1                                                             ALTG5890
100   RETURN                                                            ALTG5900
      END                                                               ALTG5910
```

```
      SUBROUTINE REPVEC                                                 ALTG5920
C                                                                       ALTG5930
C     THIS ROUTINE SELECTS THE PROPER REPAIR VECTOR TO DESCRIBE SMALL   ALTG5940
C        ALTS AND USES THE VECTOR IN MAKING THE ALT MATRIX              ALTG5950
C                                                                       ALTG5960
      COMMON /TWO/NOALT,RVEC(20,79,3),KTYP(2,6,3),AVEC(20)              ALTG5970
     .   ,NTYP(3),NVEC,IRV,ITRACE                                       ALTG5980
      COMMON /THREE/ DMAF(22),IENDSM,IENDMF,IDONLY,ISONLY,MANO          ALTG5990
      INTEGER DMAF                                                      ALTG6000
C                                                                       ALTG6010
C   LOOP ON NUMBER OF SETS OF INPUT VECTORS                             ALTG6020
      DO 10 K=1,NVEC                                                    ALTG6030
C                                                                       ALTG6040
C   STORE INDEX FOR REPAIR VECTOR SET WHICH COVERS THIS SHIP TYPE       ALTG6050
      IRV=K                                                             ALTG6060
      NK=NTYP(K)                                                        ALTG6070
      DO 10 J=1,NK                                                      ALTG6080
C                                                                       ALTG6090
C   IS DMAF SHIP TYPE COVERED BY THIS VECTOR SET                        ALTG6100
      IF(DMAF(3).GE.KTYP(1,J,K).AND.                                    ALTG6110
     .   DMAF(3).LE.KTYP(2,J,K)) GO TO 30                               ALTG6120
10    CONTINUE                                                          ALTG6130
C                                                                       ALTG6140
C   SET FLAG THAT NO VECTOR ON FILE FOR THIS SHIP TYPE                  ALTG6150
      IRV=0                                                             ALTG6160
      IF(ITRACE.EQ.1) WRITE(6,20) DMAF(3)                               ALTG6170
20    FORMAT(50H --- NO REPAIR VECTORS FOUND FOR THIS SHIP TYPE    ,A4) ALTG6180
30    IF(ITRACE.EQ.1) WRITE(6,40) IRV                                   ALTG6190
40    FORMAT(18H REPAIR VECTOR SET     ,I3)                             ALTG6200
      RETURN                                                            ALTG6210
      END                                                               ALTG6220
```

```
      SUBROUTINE RVIN                                                   ALTG6230
      COMMON /TWO/NOALT,RVEC(20,79,3),KTYP(2,6,3),AVEC(20)              ALTG6240
     .    ,NTYP(3),NVEC,IRV,ITRACE                                     ALTG6250
C                                                                       ALTG6260
C     THIS ROUTINE READS THE SHOP REPAIR VECTOR DATA WHICH IS MINIMALLY  ALTG6270
C       GROUPED INTO CARRIERS, SUBMARINES, AND OTHER ACTIVE SHIPS       ALTG6280
C                                                                       ALTG6290
      READ(14,10) MUD                                                   ALTG6300
C                                                                       ALTG6310
C     THE UPPER LIMIT OF THIS LOOP SHOULD BE KEPT EQUAL TO THE DIMENSION ALTG6320
C       OF THE THIRD SUBSCRIPT OF RVEC                                  ALTG6330
      DO 30 K=1,3                                                       ALTG6340
C                                                                       ALTG6350
C     READ SHIP TYPES COVERED BY THIS VECTOR SET                        ALTG6360
      READ(14,10,END=60)NT,((KTYP(I,J,K),I=1,2),J=1,NT)                 ALTG6370
10    FORMAT(9X,I1,1X,5(A4,1X,A4,3X),A4,1X,A4)                          ALTG6380
      NVEC=K                                                            ALTG6390
15    NTYP(K)=NT                                                        ALTG6400
C                                                                       ALTG6410
C     READ SHOP VECTOR SET                                              ALTG6420
      READ(14,20) ((RVEC(I,J,K),I=1,20),J=1,79)                         ALTG6430
20    FORMAT(10X,10F7.4)                                                ALTG6440
30    CONTINUE                                                          ALTG6450
C                                                                       ALTG6460
C     DETERMINE IF SOME VECTOR SETS HAVE NOT BEEN READ                  ALTG6470
      READ(14,10,END=60) MUD                                            ALTG6480
40    WRITE(6,50)                                                       ALTG6490
50    FORMAT(70H --- NOT ALL REPAIR VECTORS WERE READ.  INCREASE DIMENSIALTG6500
     .ON OF RVEC.                )                                    ALTG6510
60    RETURN                                                            ALTG6520
      END                                                               ALTG6530
```

```
      SUBROUTINE ZERO                                                    ALTG6540
C                                                                        ALTG6550
C     THIS ROUTINE RESETS THE ALT MATRIX TO ZERO                         ALTG6560
C                                                                        ALTG6570
      COMMON /ONE/SAM(22),IEXYR,MO,NREP,REP(4,100),MMPM,X(10,21),LMPM    ALTG6580
      DO 10 I=1,10                                                       ALTG6590
      DO 10 J=1,21                                                       ALTG6600
10    X(I,J)=0                                                           ALTG6610
      RETURN                                                             ALTG6620
      END                                                                ALTG6630
```

3.3.6 GLOSSARY

COMMON VARIABLES

Common Block /ONE/

SAM(22)	One record of the SAMIS file, see Section 2.2.3.3.
IEXYR	Input execution year.
MD	Mandays required for a SAMIS alteration.
NREP	Number of availabilities in which AMT replaces FMP mandays.
REP(4,100)	Array of availabilities in which replacement of AMT for FMP mandays occurs; the first subscript refers to the ship type, hull number, sequence number, and fiscal year, and the second to the number of such availabilities.
MMPM	Depot maintenance planning module number.
X(10,21)	Alteration matrix in which the first subscript refers to the SWBS values and the second refers to the shops.
LMPM	Index for MMPM.

Common Block /TWO/

NOALT	Alteration data flag set to "1" if alteration data exist and to "0" if no alteration data exist.
RVEC(20,79,3)	Repair shop vectors.
KTYP(2,6,3)	Array of ship types covered by a set of repair vectors.
AVEC(20)	Alteration shop vectors.
NTYP(3)	Number of ship types covered by a set of repair vectors.
NVEC	Number of sets of repair vectors.
IRV	Repair vector set number applicable to current availabilities.
ITRACE	Intermediate print option flag set to "1" to print; otherwise set to "0".

Common Block /THREE/

DMAF(22)	One record of the DMAF file; see Section 2.2.3.2.
IENDSM	Flag set to "1" if processing of the SAMIS file is completed; otherwise it is "0".
IENDMF	Flag set to "1" if processing of the DMAF-1 file is completed; otherwise it is "0".
IDONLY	Flag set to "1" if an availability appears in the DMAF-1 file but not in the SAMIS file; otherwise it is set to "0".
ISONLY	Flag set to "1" if an availability appears in the SAMIS file but not the DMAF-1; otherwise it is set to "0".
MANO	Alteration matrix number.

Common Block /FOUR/

DMFTOT	Total mandays for a DMAF availability.
KNUC(5)	Nuclear availability identification and associated mandays.
MDTOT	Total mandays for a SAMIS availability.
NUC	Flag for nuclear input for the current availability; set to "1" for nuclear input; otherwise set to "0".

Common Block /FIVE/

EOF11	End-of-file flag for alteration scopes, set to "1" if end-of-file; set to "0" for no end-of-file.
EOF12	End-of-file flag for nuclear alterations, set to "1" if end-of-file; set to "0" for no end-of-file.
KFIRST	Flag set to "1" after reading the first record of the MAF; otherwise it is "0".

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DEPOT MAINTENANCE PLANNING AND PROGRAMMING SYSTEM (DMPPS). VOLU--ETC(U)
JUL 78 M J LAMATRICE , J K ST. LAURENT

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LOCAL VARIABLES

Main Program

I	Index used for I/O statements.
IB	Index used for I/O statements.
IBLANK	A one-character blank space.
IG	Index for the number of planning modules.
IN	Index used for I/O statements.
IR	Index for NREP.
ISAM(4)	Ship type, hull number, sequence number and fiscal year of previous SAMIS availability.
ISKIP(6)	DMAF work types not to be processed.
ISWB(9)	Lower limit of SWBS range in DMPM mapping.
IW	Lower limit of SWBS range in DMPM mapping.
JG	Index for the numbers of SWBS ranges corresponding to a particular KDMPM.
JSWB(9)	Upper limit of SWBS range in DMPM mapping.
JW	Upper limit of SWBS range in DMPM mapping.
KDMPM(79)	Depot maintenance planning module numbers.
KW	Index for the SWBS corresponding to a particular KDMPM.
LARGE	Lower boundary for large alterations.
LOOP	Flag set to "1" after reading the first SAMIS record; otherwise it is "0".
MALT	Flag set to "1" after reading the first alteration of an availability; otherwise it is "0".
MPM(1000)	Index for the planning module corresponding to each SWBS.
MSWBF	Flag set to "1" if illegal SWBS table is to be printed; otherwise it is "0".

Subroutine AVDIF

IA	Index for I/O statements.

Subroutine MANDAY

CV	Variable used to test for ship type CV.
CVN	Variable used to test for ship type CVN.
CVT	Variable used to test for ship type CVT.
I	Index for the number of alterations in which AMT replaces FMP mandays.

Subroutine NUCIN

I	Index for NUCTYP.
NUCTYP	Array of nuclear ship types.

Subroutine REPVEC

J	Index for NK.
K	Index for the number of sets of repair vectors.
NK	Number of ship types covered by a set of repair vectors.

Subroutine RVIN

I	Index used for I/O statements.
J	Index used for I/O statements.
K	Index used for I/O statements.
MUD	Dummy read variable.
NT	Number of ship types covered by a set of repair vectors.

Subroutine ALTVEC

ALNO(I,J)	Alteration identification number.
CLASS	Ship class.
J	Index for the number of alterations for a ship type.
JJ	Number of alterations for a ship type.
K	Index for JJ.
TYPE	Ship type.
VECTOR	Alterations shop vector.

Subroutine MAT

IS	Index for shops.
MP	A one-digit planning module designation.

Subroutine MATOT

IDA	Index for I/O statements.
IPM	Index for one-digit planning module designation.
IS	Index for shops.

Subroutine ZERO

I	Index for one-digit planning module designation.
J	Index for shops.

3.3.7 SAMPLE RUN

This program was run with the same data set as the previous program, along with certain additional input files. Once again, the intermediate output option was not selected for the sample run. All other reports generated by the program are included as well as those input files not used by the previous program. Some partial listings are included for compactness.

Unit 5 - Card Input

The actual inputs cards are punched as follows:

Card no. 1 - 7800007500001
Card no. 2 - 00.

Unit 9 - SWBS-to-DMPM Transformation

```
79
1001  100-100 110-124 130-160 164-164 166-166 192-192
1002  125-126
1003  161-161 191-191
1004  162-162
1005  163-163
1006  165-165
1007  167-169
1008  170-179
1009  180-187
2001  200-209 250-250
2002  210-219
2003  221-221 259-259
2004  222-222 234-234
2005  231-233
2006  235-239 223-224
2007  241-246
2008  247-247
2009  251-251
2010  252-252
2011  253-253 258-258
2012  254-256
2013  261-264 290-290
3001  310-312
3002  313-314 320-324 330-332
3003  341-343 390-390
3004  300-309
4001  411-412 493-493
4002  413-417
4003  422-424 426-427 494-494
4004  421-421 425-425
4005  430-446 495-495
4006  450-453 455-455 459-459
4007  454-454 492-492
4008  460-465
4009  470-476
4010  480-489
4011  400-409 490-491
5001  511-511 517-517
5002  512-513
5003  515-515
5004  514-514 516-516
5005  520-558 598-598
5006  562-562
5007  560-561 563-568
5008  570-573 581-585 589-589
5009  586-586
5010  587-587
5011  588-588
5012  591-592 594-597
5013  593-593
5014  500-509
6001  611-613 632-632
6002  631-631
6003  634-639
```

```
6004  644-644 656-656
6005  655-655
6006  641-643 645-645 650-654 661-664
6007  660-660 665-665
6008  670-673 690-690 698-699
6009  600-618 640-640
6010  620-625
6011  633-633
7001  710-711 720-721
7002  712-713 722-723 772-773 780-780 782-783 790-790 792-792 797-799
7003  724-728
7004  730-733 740-743
7005  750-754
7006  760-763
7007  700-709
8001  810-813 896-897 802-802
8002  820-820 830-839
8003  840-845
8004  850-859 890-898 892-895
8005  891-891
9001  982-982
9002  980-981 983-989
9003  990-994
9004  995-995
9005  997-997
```

Unit 14 - Repair Vectors

8/77 - SAMPLE

- 1	6	*OTH-*OTH	AD	-AGP	AO	-CGN	DD	-DDG	FF	-PHM	SURF-SURF
1	1001.1	0.0000	.3345	.0157	.0098	.2477	.0092	.0011	.0150	.0084	.0504
1	1001.2	.0545	.0315	0.0000	.0060	.0524	.1130	.0002	.0006	.0143	.0357
1	1002.1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	1002.2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
1	1003.1	0.0000	.0921	0.0000	.0059	.0529	.0009	0.0000	.0081	0.0000	0.0000
1	1003.2	.0439	.0651	0.0000	0.0000	.0258	.5943	0.0000	0.0000	.0458	.0652
1	1004.1	0.0000	.3345	.0157	.0098	.2477	.0092	.0011	.0150	.0084	.0504
1	1004.2	.0545	.0315	0.0000	.0060	.0524	.1130	.0002	.0006	.0143	.0357
1	1005.1	0.0000	.2436	.0011	.0132	.1545	.0686	0.0000	.1463	.0211	0.0000
1	1005.2	.0801	.0559	0.0000	0.0000	.0826	.0593	.0006	.0004	.0040	.0687
1	1006.1	0.0000	.0909	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	1006.2	0.0000	.5236	0.0000	0.0000	.2727	.0303	0.0000	.0218	0.0000	.0607
1	1007.1	0.0000	.6342	.0042	.0121	.0833	.0488	0.0000	.0044	.0037	.0277
1	1007.2	0.0000	.0342	0.0000	0.0000	.0354	.0459	.0001	.0013	.0541	.0106
1	1008.1	0.0000	.2963	.1204	0.0000	.2593	.0012	0.0000	0.0000	0.0000	.0224
1	1008.2	.0001	.1378	0.0000	.0133	.0602	.0833	0.0000	.0057	0.0000	.0000
1	1009.1	0.0000	.6667	0.0000	0.0000	.3333	0.0000	0.0000	0.0000	0.0000	0.0000
1	1009.2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	2001.1	.0004	.0095	.0088	.0038	.0234	.2785	0.0000	.4151	.0452	.0085
1	2001.2	.0782	.0222	0.0000	0.0000	.0007	.0740	.0013	.0028	.0001	.0275
1	2002.1	.0022	.0064	.0135	.0004	.0080	.0525	0.0000	.0809	.0463	.2210
1	2002.2	.2423	.0077	0.0000	.0145	.0128	.0819	0.0000	.0010	.0050	.2036
1	2003.1	.0001	.0032	.0030	.0234	.1494	.0472	0.0000	.0469	.5368	.0055
1	2003.2	.0757	.0082	0.0000	.0014	.0105	.0276	.0088	.0005	.0044	.0474
1	2004.1	.0004	.0095	.0088	.0038	.0234	.2785	0.0000	.4151	.0452	.0085
1	2004.2	.0782	.0222	0.0000	0.0000	.0007	.0740	.0013	.0028	.0001	.0275
1	2005.1	.0004	.0095	.0088	.0038	.0234	.2785	0.0000	.4151	.0452	.0085
1	2005.2	.0782	.0222	0.0000	0.0000	.0007	.0740	.0013	.0028	.0001	.0275
1	2006.1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	2006.2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000
1	2007.1	0.0000	.0535	.0033	.0045	.0498	.2129	0.0000	.3046	.0281	.0100
1	2007.2	.0228	.0737	0.0000	0.0000	.0193	.1571	.0031	.0024	.0032	.0517
1	2008.1	.0004	.0095	.0088	.0038	.0234	.2785	0.0000	.4151	.0452	.0085
1	2008.2	.0782	.0222	0.0000	0.0000	.0007	.0740	.0013	.0028	.0001	.0275
1	2009.1	.0001	.0081	.0077	.0013	.0242	.2837	0.0000	.3441	.0449	.0355
1	2009.2	.1413	.0149	0.0000	.0040	.0053	.0641	.0004	.0026	.0002	.0176
1	2010.1	.0022	.0042	.0030	.0003	.0202	.1366	0.0000	.5447	.0045	.0081
1	2010.2	.2035	.0052	0.0000	0.0000	.0082	.0292	0.0000	.0028	.0055	.0218
1	2011.1	.0001	.0086	.0035	.0017	.0526	.2398	0.0000	.3255	.0218	.0080
1	2011.2	.2185	.0176	0.0000	0.0000	.0070	.0390	.0005	.0038	.0028	.0492
1	2012.1	0.0000	.0051	.0068	.0013	.0268	.4227	0.0000	.1808	.0181	.0398
1	2012.2	.1996	.0069	0.0000	0.0000	.0142	.0574	.0084	.0029	.0007	.0165
1	2013.1	0.0000	.0221	.0977	.0019	.0574	.2294	0.0000	.0806	.0178	.0176
1	2013.2	.3436	.0063	0.0000	0.0000	.0173	.0866	.0005	.0017	.0009	.0186
1	3001.1	0.0000	.0352	.0224	.0019	.0400	.2259	0.0000	.2294	.0196	.1698
1	3001.2	.1171	.0108	0.0000	.0115	.0170	.0685	.0086	.0025	.0065	.0213
1	3002.1	.0014	.0609	.0331	.0024	.0486	.0671	.0312	.0301	.0051	.4940
1	3002.2	.0397	.0198	0.0000	.0292	.0250	.0706	.0002	.0006	.0086	.0324
1	3003.1	0.0000	0.0000	.0646	.0002	.0523	.1642	0.0000	.1760	.0120	.0673
1	3003.2	.3119	.0123	0.0000	0.0000	.0185	.0523	.0001	.0006	.0001	.0676
1	3004.1	0.0000	0.0000	0.0000	0.0000	0.0000	.0500	0.0000	0.0000	0.0000	.9500
1	3004.2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unit 2 -

ILLEGAL SWBS

SWBS	TYPE	HULL	SEQ.NO.	ALT.NO.
0	CGN	25	30	01076
410	CGN	25	30	00268
0	CGN	35	20	00349
0	CGN	35	20	W7110
0	CGN	35	20	00284
410	CGN	35	20	00216
0	CGN	36	10	00113
0	CGN	37	10	00113
0	CGN	38	10	00063
0	CV	42	35	W0091
20	CV	43	40	03611
510	CV	43	40	03744
510	CV	43	40	03731
0	CV	59	33	W1320
0	CV	59	33	W0091
0	CV	59	33	W0019
0	CV	59	40	04748
0	CV	59	40	04593
60	CV	59	40	03931
793	CV	59	50	04137
510	CV	59	50	03745
510	CV	59	50	03747
0	CV	60	51	W0019
0	CV	60	51	W1310
0	CV	60	51	W0091
0	CV	60	51	04593
0	CV	60	51	04748
0	CV	60	52	W0092
0	CV	60	52	W1320
0	CV	60	52	W1265
0	CV	60	52	W0061
510	CV	60	60	03736
0	CV	60	60	W0050
793	CV	60	60	03625
793	CV	61	50	03625
0	CV	61	50	04593
60	CV	61	50	03931
0	CV	61	50	04504
0	CV	61	51	04770
510	CV	61	60	03739
0	CV	62	33	W1265
0	CV	62	33	W1265
0	CV	62	33	W0091
0	CV	62	33	W1265
0	CV	62	33	W0019
0	CV	62	33	04748
60	CV	62	33	03931
0	CV	62	41	05340
510	CV	62	43	03747

Unit 8 -

PUGETCGN	9	30 C	40179	40182AANNW792	82471	739000	01500	8 9	0	1
PUGETCGN	9	30*C	40179	40182AANNW801	163588	739000	01500	8 9	0	2
PUGETCGN	9	30*C	40179	40182AANNW802	164152	739000	01500	8 9	0	3
PUGETCGN	9	30*C	40179	40182AANNW811	163582	739000	01500	8 9	0	4
PUGETCGN	9	30*C	40179	40182AANNW812	123009	739000	01500	8 9	0	5
PUGETCGN	9	30*C	40179	40182AANNW821	42207	739000	01500	8 9	0	6
PUGETCGN	9	30*C	40179	40182AANNW822	68	739000	01500	8 9	0	7
PUGETCGN	25	24 RA	11579	31579AANNW791	30000	30000	0 1	20 1	0	8
PUGETCGN	25	30 RO	60182	80183AANNW822	75760	298507	0 2	1419	0	9
PUGETCGN	35	11 RA	11579	31579AANNW791	12000	12000	01500	8 1	0	10
PUGETCGN	35	20 RO	60181	80182AANNW812	75760	298507	0 3	1419	0	11
PUGETCGN	35	20*RO	60181	80182AANNW821	165233	298507	0 3	1419	0	12
PUGETCGN	35	20*RO	60181	80182AANNW822	57513	298507	0 3	1419	0	13
PUGETCGN	36	4 RA	11579	41679AANNW791	43925	47204	0 4	24 1	0	14
PUGETCGN	36	4*RA	11579	41679AANNW792	3278	47204	0 4	24 1	0	15
PUGETCGN	36	10 RO	41488	61481AANNW802	116368	278550	0 5	14 9	0	16
PUGETCGN	36	10*RO	41488	61481AANNW811	144621	278550	0 5	14 9	0	17
PUGETCGN	36	10*RO	41488	61481AANNW812	17568	278550	0 5	14 9	0	18
NORVACGN	37	4 RA	62178	82278AANNE782	20400	20400	0 6	39 1	0	19
NORVACGN	37	10 RO	10281	30582AANNE811	68369	278000	0 7	1413	0	20
NORVACGN	37	10*RO	10281	30582AANNE812	161821	278000	0 7	1413	0	21
NORVACGN	37	10*RO	10281	30582AANNE821	47808	278000	0 7	1413	0	22
NORVACGN	38	4 RA	80379180279AANNE792		11955	12000	0 8	32 1	0	23
NORVACGN	38	4*RA	80379100279AANNE801		44	12000	0 8	32 1	0	24
NORVACGN	38	10 RO	70182	90283AANNE822	69808	278000	01500	813	0	25
PUGETCGN	39	4 RA	71579	91579AANNW792	12000	12000	0	9100 1	0	26
CHASNCGN	40	4 RA	50182	70182AANNE822	12000	12000	01500	0 1	0	27
NWPACCV	41	35 RA	71078	91178CVAPW782	40000	40000	0 10	4917	0	28
PUGETCV	41	36 RA	111078	11179CVANW791	40000	40000	0 11	4817	0	29
LBECHCV	41	40 RO	101280101281CVANW811		179097	396045	0 12	21 1	0	30
LBECHCV	41	40*RO	101280101281CVANW812		215472	396045	0 12	21 1	0	31
LBECHCV	41	40*RO	101280101281CVANW821		1474	396045	0 12	21 1	0	32
LBECHCV	43	40 RO	113077112978CVANW781		124004	342067	0 13	1724	0	33
LBECHCV	43	40*RO	113077112978CVANW782		199985	342067	0 13	1724	0	34
LBECHCV	43	40*RO	113077112978CVANW791		18076	342067	0 13	1724	0	35
D 12 CV	43	41 RA	31080	71180CVAPW801	2096	10000	01500	817	0	36
D 12 CV	43	41*RA	31080	71180CVAPW802	7903	10000	01500	817	0	37
D 06 CV	59	41 RA	110378	12979CVAPE791	73258	73258	0 14	3917	0	38
NORVACV	59	42 RA	50380	72980CVANE802	60000	60000	0 15	4317	0	39
NORVACV	59	43 RA	100181	10182CVANE821	60000	60000	01500	817	0	40
D 06 CV	60	53 RA	10678	40378CVAPE781	86977	89360	0 16	4017	0	41
D 06 CV	60	53*RA	10678	40378CVAPE782	2382	89360	0 16	4017	0	42
NORVACV	60	60 RO	420791201 79CVANE792		194944	240000	0 17	4723	0	43
NORVACV	60	60*RO	420791201 79CVANE801		45055	240000	0 17	4723	0	44
D 06 CV	60	61 RA	70182100182CVAPE822		59484	60000	0 18	4217	0	45
PUGETCV	61	50 RO	21577	21578CVANW781	111686	443300	0 19	3824	0	46
D 11 CV	61	51 RA	20180	50180CVAPW801	44312	60000	0 20	42 1	0	47
D 11 CV	61	51*RA	20180	50180CVAPW802	15687	60000	0 20	42 1	0	48
D 11 CV	61	52 RA	90181120181CVAPW812		14731	60000	0 21	46 1	0	49
D 11 CV	61	52*RA	90181120181CVAPW821		45268	60000	0 21	46 1	0	50
NORVACV	62	40 RO	112177101978CVANE781		140469	346352	0 22	4123	0	51
NORVACV	62	40*RO	112177101978CVANE782		199596	346352	0 22	4123	0	52
NORVACV	62	40*RO	112177101978CVANE791		6286	346352	0 22	4123	0	53
NORVACV	62	41 RA	90179112679CVANE792		29389	69170	0 23	4217	0	54
NORVACV	62	41*RA	90179112679CVANE801		39780	69170	0 23	4217	0	55
D 11 CV	62	42 RA	10281	40181CVAPW811	59925	60000	0 24	41 1	0	56
D 11 CV	62	42*RA	10281	40181CVAPW812	74	60000	0 24	41 1	0	57
D 11 CV	62	43 RA	50182	80182CVAPW822	60000	60000	0 25	41 1	0	58

Unit 10 -

ALTERATION MATRIX NUMBER 6 SHOP CATEGORIES

SWBS	6	11	17	23	26	31	36	38	41	51	56	64	65	67	71	72	81	94	99	OTH	TOTAL
100	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
200	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
300	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
400	.0000	.0000	.0042	.0000	.0004	.0418	.0000	.0031	.0008	.0767	.1396	.0008	.0000	.6561	.0061	.0106	.0000	.0000	.0277	.0321	1.0000
500	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
600	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
700	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
800	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
900	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
TOT	.0000	.0000	.0042	.0000	.0004	.0418	.0000	.0031	.0008	.0767	.1396	.0008	.0000	.6561	.0061	.0106	.0000	.0000	.0277	.0321	1.0000

ALTERATION MATRIX NUMBER 7 SHOP CATEGORIES

SWBS	6	11	17	23	26	31	36	38	41	51	56	64	65	67	71	72	81	94	99	OTH	TOTAL
100	.0000	.1021	.0009	.0020	.0157	.0110	.0000	.0058	.0012	.0049	.0015	.0059	.0000	.0001	.0060	.0091	.0000	.0002	.0006	.0063	.1013
200	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
300	.0000	.0000	.0008	.0000	.0007	.0021	.0000	.0023	.0002	.0009	.0040	.0002	.0000	.0000	.0002	.0007	.0000	.0000	.0000	.0009	.0129
400	.0000	.0021	.0044	.0000	.0020	.0247	.0128	.0023	.0002	.0333	.0519	.0022	.0000	.2060	.0071	.0076	.0000	.0004	.0018	.2022	.5613
500	.0000	.0052	.0000	.0001	.0052	.0064	.0000	.0151	.0009	.0003	.0030	.0049	.0000	.0000	.0013	.0057	.0000	.0002	.0003	.0297	.0784
600	.0000	.0003	.0002	.0000	.0001	.0006	.0047	.0028	.0000	.0003	.0006	.0004	.0000	.0008	.0005	.0006	.0000	.0000	.0000	.0009	.0129
700	.0000	.0219	.0013	.0000	.0053	.0131	.0656	.0000	.0007	.0052	.0020	.0032	.0000	.0000	.0027	.0113	.0000	.0002	.0001	.0206	.1532
800	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
900	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
TOT	.0000	.1316	.0078	.0023	.0291	.0580	.0831	.0283	.0031	.0449	.0629	.0167	.0000	.2069	.0179	.0358	.0001	.0011	.0108	.2606	1.0000

ALTERATION MATRIX NUMBER 8 SHOP CATEGORIES

SWBS	6	11	17	23	26	31	36	38	41	51	56	64	65	67	71	72	81	94	99	OTH	TOTAL
100	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
200	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
300	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
400	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
500	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
600	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
700	.0000	.1432	.0087	.0003	.0348	.0853	.4280	.0000	.0043	.0337	.0128	.0209	.0000	.0000	.0174	.0739	.0000	.0015	.0005	.1347	1.0000
800	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
900	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	0.0000
TOT	.0000	.1432	.0087	.0003	.0348	.0853	.4280	.0000	.0043	.0337	.0128	.0209	.0000	.0000	.0174	.0739	.0000	.0015	.0005	.1347	1.0000

Unit 13 -

AVAILABILITIES ONLY IN SAMIS

TYPE	HULL	SEQ.NO.	FY
CGN	25	23	77
CV	41	33	76
CV	41	34	77
CV	42	35	76
CV	43	33	76
CV	59	33	76
CV	59	40	77
CV	59	50	82
CV	60	51	76
CV	60	52	77
CV	61	60	82
CV	62	33	76

Unit 1 -

AVAILABILITIES ONLY IN DMAF

TYPE	HULL	SEQ.NO.	FY
CGN	9	30	79
CGN	9	30	80
CGN	9	30	80
CGN	9	30	81
CGN	9	30	81
CGN	9	30	82
CGN	9	30	82
CGN	35	11	79
CGN	40	4	82
CV	43	41	80
CV	59	43	82

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